

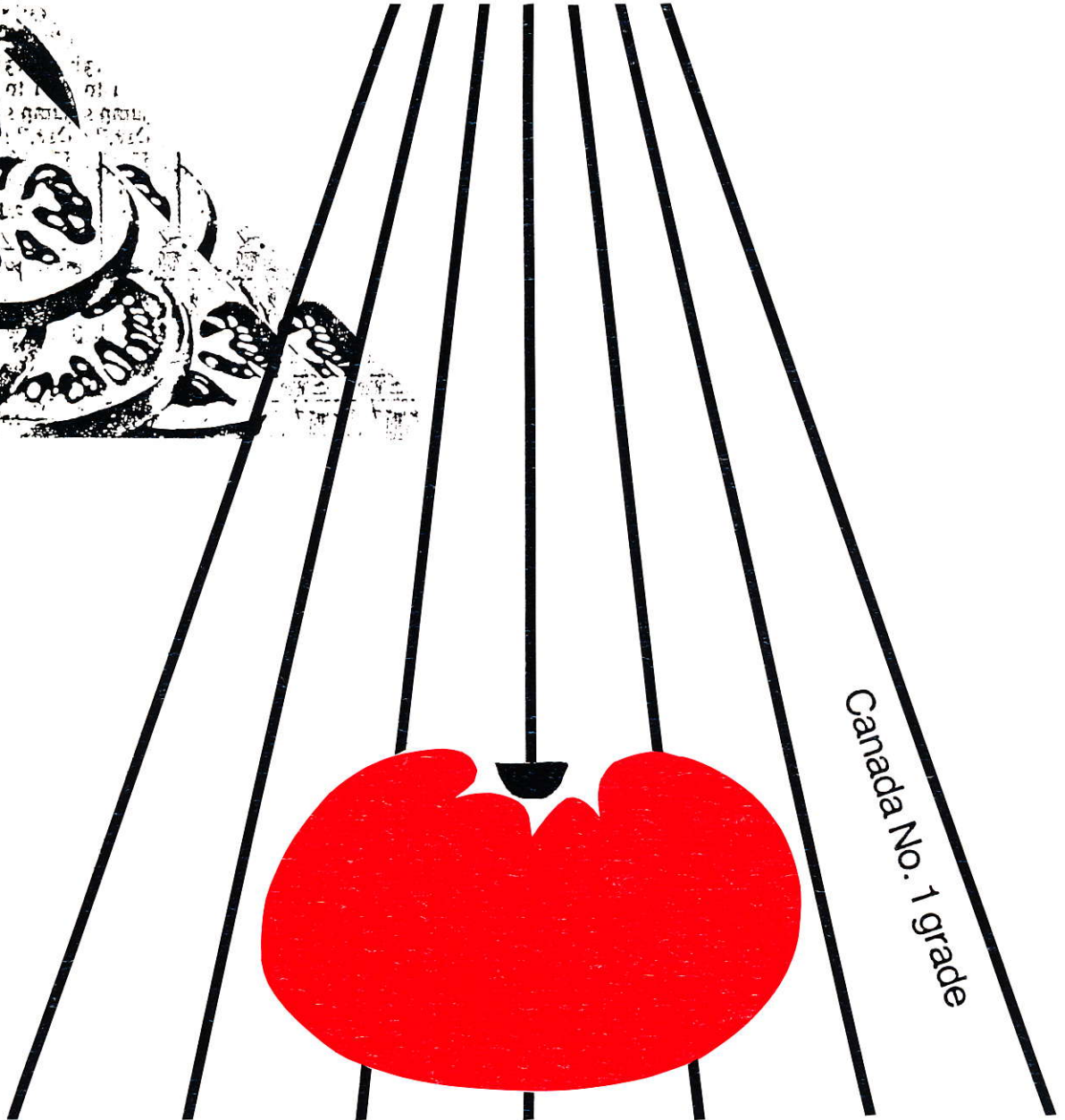
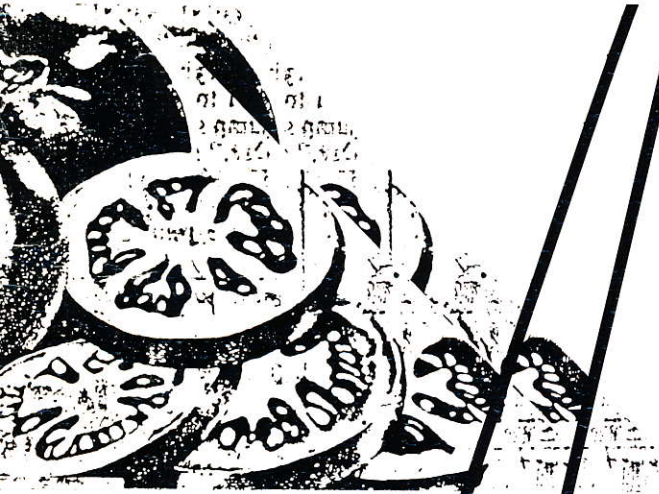


Canadian
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Journal

Winter 1987. Volume 37, No. 1

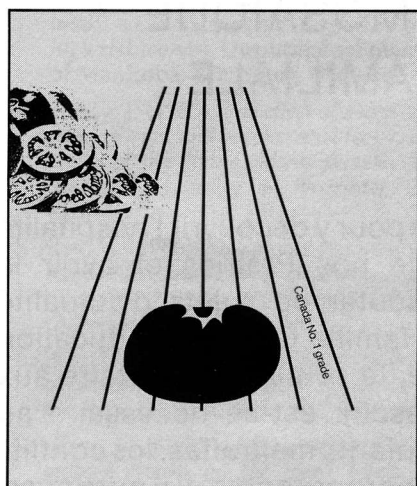
Revue
canadienne
d'économie familiale

Hiver 1987. Volume 37, n° 1



Health Issues

Santé



The cover, designed by Heather Kowalchuk, symbolizes food along the production line as one of the many factors contributing to health. (Designed as a project in the 4th year graphic design class, School of Art, University of Manitoba, under the direction of Professor Norman Schmidt.)

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3536 avenue Parliament
Régina, Saskatchewan
S4S 2M3

(306) 586-1705

As a new year begins, so does a new volume of the *CHEJ*. For the majority of the current Editorial Committee, this is our last volume and throughout 1987 we will continue to strive for excellence.

Along with a new volume comes new cover designs. The designs for 1987 were selected from those submitted by some of the students in the 4th year graphic design class of the School of Art at the University of Manitoba. This year, the cover designs form a unified appearance as each design is one of a four-part series. Congratulations are extended to Heather Kowalchuk whose designs were chosen for publication. Appreciation is expressed to the students who took part in the project and to Professor Norman Schmidt for his willingness to co-ordinate the project, and for the encouragement and guidance he provided.

Improving the quality of life for individuals and families, the common goal of the home economics profession, forms the basis of the theme sections of the 1987 issues of the *Journal*. In this first issue we focus on "Health Issues". The World Health Organization's definition of health — "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" — is one in harmony with home economics. The articles in the theme section exemplify this.

The radiation processing of foods and the growth in potential commercial applications of the process requires an understanding of the benefits the process offers. Singh's in-depth article provides the reader with the background information to understand radiation processing and its applications.

Adaptive clothing design for the handicapped or the elderly is discussed by Shannon and the experience of many European design centres is highlighted. The European approach has helped a number of distinct groups and similar Canadian centres could address most of the disabling conditions existing in our population.

The winning entry in the 1986 Undergraduate Writing Competition appears in this issue. Congratulations to Elizabeth Gordon for her article on the stress factors inherent in the institution of the farm family and the implications for rural human service workers. Senior undergraduate students are encouraged to take part in this year's competition (See *CHEJ*, Fall 1986, 36(4), 150).

To the readers who have written to us we express our appreciation. "Reader Forum", designed to promote dialogue, includes comments and opinions from our readership. Keep the dialogue going by responding to these thoughts or by sharing your own insights with us. □

Barbara Baczynsky
Ruth Berry
Brenda Speirs-Fryatt

Reader Forum

Letters and comments from the readership

A Response to "Delete Homemaker Category"

Just opened my *Journal* to see "Delete Homemaker Category" (See Reader Forum, *CHEJ*, Fall 1986). Although the writer confuses me with her contradictory logic (eg. homemaking by home economists isn't home economics, but it should be a "career") I gather she is of the opinion that the only "practising of home economics" that counts is the one you get money for. I couldn't disagree more! Some of the most valuable teaching of the sciences of home economics has been done by a home economist who at some period in her life has been a "homemaker".

It is no small wonder that our social services within our governments have an ever increasing deficit when the "pay for it" mentality is so prevalent in the professional base of our society. We need more emphasis on the "professional" as a community builder.

Interestingly enough no recommendations were made as to what would become of the professional home economist who becomes a homemaker. While that alternative is being considered, we should realize that with the same "delete the homemaker" reasoning we will also do away with the "retired" category.

Who will be the poorer for those deletions. I'd say both the profession and the homemaker and retiree. However, the homemaker and retired home economist will get along quite nicely, but will the profession?

Glenora Slimmon
Co-ordinator, Seniors for Seniors Co-op (volunteer)
Brandon, Manitoba

Skills For Life Series

I read, with much dismay — and some anger — the review of the "Skills For Life Series" (McClelland & Stewart) in the Summer 1986 *CHE Journal*. From the comments of your reviewers, it is quite clear that they are unfamiliar with the Ontario Ministry Curriculum Document — Personal Life Management (formerly Life Skills) for which the series of three books was written.

The curriculum guideline comprises 12 modules (or courses), Parenting, Nutrition and Career Planning are three of these. Each module is allocated 30-40 hours of class time and students choose 3 or 4 modules to earn one credit. The grade level is Intermediate and Senior — Grade 9 to 12.

(Continued on page 56)

CHEJ EDITORIAL OFFICE

34 Linacre Road
Winnipeg, MB, R3T 3G6 Canada

Editor/Rédactrice en chef

Barbara Baczynsky, BHEC
Free Lance Home Economist
Tel: (204) 261-7024

Associate Editors/ Rédactrices associées

Ruth Berry, PhD
Professor, Family Studies
University of Manitoba
Tel: (204) 474-9794

Brenda Speirs-Fryatt, BHEC
Home Economics Co-ordinator
Transcona-Springfield School Division
Winnipeg, MB

Contributing Editor/ Rédactrice en collaboration

Cathy Byard
Community Home Economist
Department of Health
Province of Manitoba

Book Review Editor/ Rédactrice des comptes rendus

Wendy MacLean, BHEC
Free Lance Home Economist
161 Browning Blvd.
Winnipeg, MB R3K 0L1

Co-editors French contributions/ Co-rédactrices des manuscrits français

Marie Barrette, M.nut.
2110 rue de l'Église
St. Laurent, PQ H4M 1G4
Tél: (514) 744-4161

Henriette Rochette-Le Hir, MEd

Research Editor/ Rédactrice des recherches

Phyllis J. Johnson, PhD
School of Family and Nutritional
Sciences
University of British Columbia
Vancouver, BC, V6T 1W5
Tel: (604) 228-4300

Advisors/Consultantes

Pat Crocker, BAA
Barbara Floyd, BA
Susan Turnbull, MSc

Business Manager/ Administratrice

CHEA National Office

Advertising Representative/ Représentant de publicité

Marnie Keefer
Keith Health Care
Communications
Suite 105
4953 Dundas St. West
Toronto, ON, M9A 1B6
Tel: (416) 239-1233

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The Association: The Canadian Home Economics Association is the national professional organization for those educated and/or working in the field of consumer and family studies, foods and nutrition, home economics, and human ecology. The mission of the association is to strengthen the home economics profession and to actively promote improved quality of life for individuals and families.

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Contributors will find *Journal* themes and submission deadline dates in the Spring 1986 issue, page 96 and the Guide for Authors in the Winter 1987 issue, pages 52-53.

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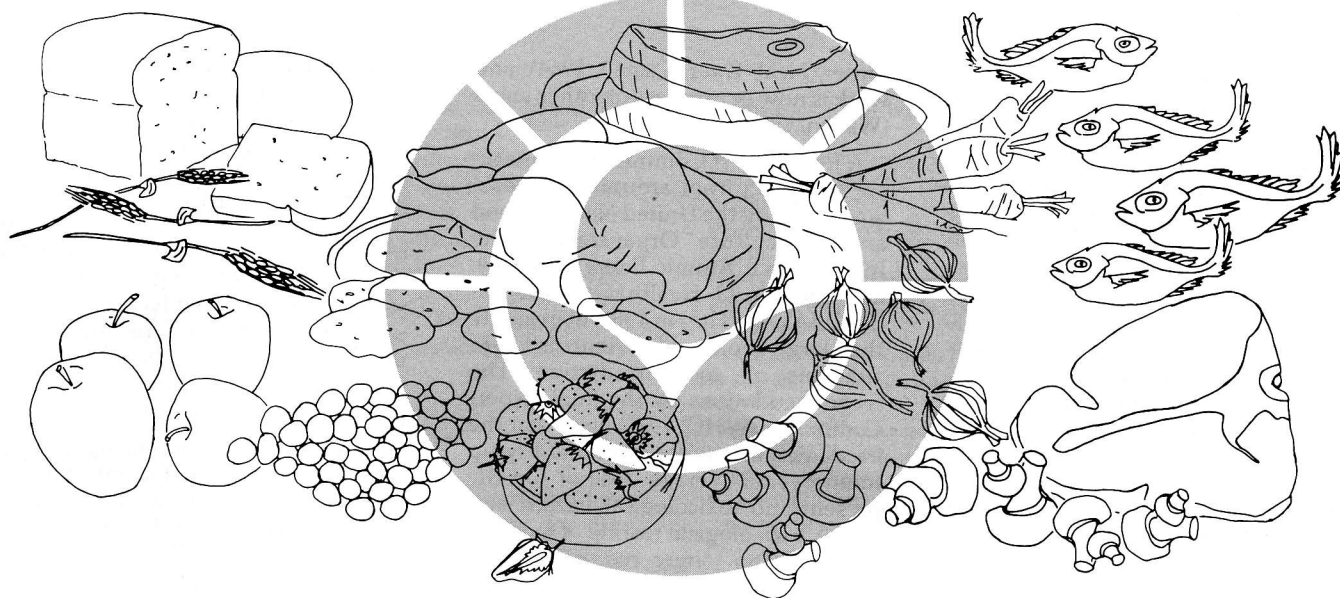
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Prevention of Food Spoilage

by Radiation Processing

Harwant Singh

Abstract

Radiation processing of foods controls spoilage and pathogenic micro-organisms with minimum effects on nutritional qualities. The process is based on four decades of extensive research work on the underlying radiation chemistry and radiobiology, and on the technology of producing radiation relatively inexpensively. Our understanding of the radiation processing of foods today is much better than our understanding of many alternate processes that have been in use. Growth of commercial applications of radiation processing requires wider dissemination of this understanding and interaction of regulatory authorities, research and development scientists, food processors and consumers, and greater understanding of the benefits the process offers, in specific foods, over other alternatives.

Résumé

L'irradiation des denrées périssables limite leur détérioration et l'action des micro-organismes pathogènes tout en ayant des effets minima sur leurs qualités nutritives. Le procédé s'appuie sur quatre décennies de travaux de recherche poussés en chimie et radiobiologie fondamentales et en technologie de production de rayonnement relativement peu coûteuse. Nous comprenons beaucoup mieux de nos jours le traitement par rayonnement des denrées alimentaires que les nombreux autres procédés employés. La croissance des applications commerciales du traitement par rayonnement nécessite une plus grande dissémination de cette information et une compréhension des avantages que ce procédé offre pour certains aliments, comparativement aux autres procédés utilisés. Ceci exige une interaction entre les autorités de réglementation, les spécialistes de la recherche et du développement, l'industrie des denrées alimentaires et les consommateurs.

Harwant Singh, PhD (University of Alberta), is Senior Research Officer, Radiation Applications Research Branch, Whiteshell Nuclear Research Establishment, Atomic Energy of Canada Limited Research Company, in Pinawa, Manitoba.

Acknowledgements. The author gratefully acknowledges the helpful comments of Stu Iverson, Jos Borsa and Ajit Singh; and thanks Ian George for providing useful information.

Food is essential for human survival and active life; it is no surprise, therefore, that production and acquisition of food remains a major activity. Many foods are perishable and begin to deteriorate largely through microbial action, soon after harvesting or slaughter (Banwart, 1979). Microbial spoilage can be effectively controlled by radiation processing, which in turn would contribute to better quality of food and improved public health. For example, radiation processing of chicken could significantly reduce incidence of salmonellosis (Kampelmacher, 1983).

Storage of foods is a necessity to meet harvest production cycles, transportation needs, and variation in supply and demand. However, during storage, foods are affected in many ways. There can be a loss of functional properties, color, flavor, aroma, texture, appearance or nutrients due to oxidation, hydrolysis, and/or other chemical reactions. Indigenous micro-organisms, pests, and enzymes degrade and cause loss of foods, although in some foods the activity of tissue enzymes is useful and even necessary, for example, in the ripening process of some fruits. However, in other foods, such as meats and fish, the activity of autolytic enzymes limits the storage life of the product.

Over centuries, the attempt has been to incorporate the best means of preserving freshness and safety of foods during storage. Many of the present-day methods of food preservation are modifications of systems used since ancient times. The addition of chemicals (e.g., salts, nitrites), fermentation, smoking, cold storage, and thermal sterilization (cooking, canning) are some examples (Heid & Joslyn, 1967). Any type of processing, including simple cooking, tends to reduce the nutrient content and quality of foods. Modern processing methods are designed to reduce the spoilage losses as much as possible while increasing the shelf life of the product and maintaining its nutrient value. In many cases specific nutrient levels are restored by enrichment, after processing.

Radiation preservation of food is a significant step forward and is a result of the advances in our understanding of the radiation chemistry, radiobiology, and the technological progress in the development of radiation sources (Elias & Cohen, 1977, 1983; International Atomic Energy Agency, 1966, 1973, 1974, 1978a,b, 1985; Josephson & Peterson, 1982, 1983a,b).

One of the programs that attracted many countries during the move to use "Atoms for Peace", in the early '50s, was food irradiation, since food spoilage is a universal problem. For example, post harvest losses of food grain in the world range between 5-50% (Salunkhe, Chavan, & Kadam, 1985). A survey in 1968 showed that 76 countries had active programs on food irradiation (Urbain, 1985). Some of the earliest thorough work on food irradiation was done by the US Atomic Energy Commission and the US Army (Gorseline, 1982; Urbain, 1985). The US Army program was primarily directed towards radiation-sterilized foods since the sensory characteristics of the thermally sterilized canned foods were unsatisfactory. Such studies led to the use of radiation sterilized foods for NASA space flights and in hospital diets for patients requiring sterilized diets (Ley, 1970). A great deal of work on food irradiation has been published from these and other laboratories in many countries (Urbain, 1985). Canada also contributed to this field, for example, by work on sprout inhibition in potatoes and onions, disinfestation of wheat and wheat products (IAEA, 1966), and fish preservation (Power,

Fraser, Neal, Dyer, Castell, 1964); and work is now in progress on other foods (Wilson, 1985).

A Joint Expert Committee of reputable scientists from around the world was set up by the United Nations Food and Agriculture Organization, the International Atomic Energy Agency, and the World Health Organization (FAO/IAEA/WHO) in 1980, to evaluate the large body of scientific data available on food irradiation. The recommendations by the Joint Expert Committee (WHO, 1981) were that the irradiation of any food commodity up to an overall average dose of 10 kGy¹ presents no toxicological hazard and hence, toxicological testing of foods so treated is no longer required. These recommendations were circulated to Governments of the Member States of the Codex Alimentarius Commission (CAC) and other interested organizations. After deliberations for 2 years, they were adopted by CAC in 1983. These recommendations have brought food irradiation closer to widespread commercial application.

Another factor in favor of irradiated foods is that the sensory qualities of such foods have been found to be acceptable by many test panels (Josephson & Peterson, 1986b; Wierbicki, 1981). The Canadian Gallup Poll (1984) conducted a consumer survey in Montreal on marketing of irradiated fish and reported that the consumer is interested in buying such fish to maintain freshness, without added chemicals.

The radiation preservation of foods includes: •inhibition of sprouting of tubers (e.g. onions, potatoes etc.) (Matsuyama & Umeda, 1983); •delay in fruit ripening (Akamine & Moy, 1983); •disinfestation of grain, flours, fruits etc. (Tilton & Burditt Jr., 1983); and •prevention of food spoilage and control of pathogens (Josephson, 1983; Nickerson, Licciardello, & Ronsivalli, 1983). In this paper the focus is on the prevention of food spoilage and control of pathogens, both of which directly affect human health.

The Process

The radiation process (irradiation) consists of exposure of foods to a source of ionizing radiation so that the

desired killing of micro-organisms/pests is achieved under conditions where chemical changes in the foods are minimal. The effect of radiation lasts only during the exposure (during which there is hardly any temperature rise) and the irradiated foods can get reinfected as easily as the unirradiated foods. Therefore, appropriate measures to prevent reinfection must be used. In many cases the foods (e.g., meats, spices, etc.) can be prepackaged before irradiation, thus avoiding the possibility of reinfection.

Irradiation is a promising process because it destroys sufficient spoilage-causing micro-organisms at low doses (up to 10 kGy) to significantly extend the refrigerated shelf life of foods (from days to weeks); and it kills all of the micro-organisms at sterilizing doses (~25 kGy) to stabilize the food indefinitely (from months to years), at ambient temperatures.

Different types of foods require different conditions of irradiation (e.g., different radiation dose, temperature etc). An abbreviated list of some of the foods approved for irradiation is shown in Table I.

The useful radiations for food irradiation are gamma or X-rays (up to 5 MeV)² and beta rays or electron beam (up to 10 MeV). Alpha particles are not suitable because their penetration is extremely low. Neutrons, which are responsible for producing energy in nuclear reactors, cannot be used in food irradiation because they would make foods radioactive. A low level of radioactivity occurs naturally in all foods. However, it should be emphasized that irradiation of food with gamma or X-rays and beta rays or electron beams, does not make the food radioactive, if the sources of radiation used conform to the energies mentioned above, as recommended by the Codex Alimentarius Commission.

Sources

The most common sources for food irradiation are the Canadian ⁶⁰Co irradiators (McKinnon & Chu, 1985). They are being used worldwide. In the United States some work has been done with ¹³⁷Cs irradiators. Electron accelerators have also been built for food irradiation in several countries

¹The term kiloGray (kGy) describes the unit of energy absorbed from radiation by the matter through which the radiation passes. A radiation dose of 1 kGy is equal to 1 kJoule of energy.

²The term million electron volts (MeV) describes the energy levels of electrons and x-rays from electrical machine sources, or beta particles and gamma-rays from radioactive sources (e.g., ⁶⁰Co, ¹³⁷Cs). One MeV is equal to 1.6×10^{18} ergs.

Table 1. Some Examples of Irradiated Food Products Unconditionally Cleared for Human Consumption^a

Product	Purpose of Irradiation	Dose Permitted (kGy)	Country
Potatoes and onions	Sprout inhibition	up to 0.15	Bangladesh, Brazil, Canada, Chile, China, Israel, Italy, Netherlands, South Africa, USSR, Yugoslavia
Strawberries ^b	Shelf-life extension	1-4	Brazil, Chile, South Africa
Wheat ^c and wheat products	Insect disinfestation	up to 0.75	Canada, Chile, USA, USSR
Chicken	Shelf-life extension, decontamination	up to 3	Bangladesh, Brazil, Chile, France, Israel, Netherlands, South Africa
Fish	Shelf-life extension	up to 2.2	Bangladesh, Brazil
Spices	Decontamination, insect disinfestation	up to 10	Bangladesh, Brazil, Canada, Chile, France, Israel, Norway, South Africa, USA ^d

^aData taken from "Food Irradiation Newsletter," (1985) of the Joint FAO/IAEA.

^bCommercial operation in South Africa

^cCommercial operation in USSR

^dThe approved dose has now been increased to 30 kGy in the US (Wierbicki et al., 1986).

(Gallien, Ferradini, Paquin, & Sadet, 1985; McKeown & Sherman, 1985). Federal and Provincial regulations are in place in Canada to ensure the safe operation of both the isotope sources (e.g., ⁶⁰Co) and the electron accelerators. Food irradiation is regulated by Health and Welfare Canada. Similar regulations are also in effect in other countries.

Microbiological Aspects

The lethal action of ionizing radiation on living cells is due to the ionic and excited molecular species and the free radicals formed which attack critical targets, such as the DNA, within the cell (Singh & Singh, 1982). Oxygen, which is normally present in biological systems, enhances radiation damage due to the formation of additional free radical species. The effect of oxygen is particularly noticeable in enhanced killing of micro-organisms. A large contribution to our understanding of the radiation effects on micro-organisms has been made by studies aimed at understanding the radiobiology relevant to cancer treatment (Adams, 1972; Lentle & Singh, 1984; Singh & Singh, 1982). The sensitivity of an organism to radiation is usually defined by the D-value, which represents the dose required for 90% inactivation or one log₁₀ reduction. The D-values are indicators of the

relative resistance of micro-organisms (Banwart, 1979).

Certain pre- and post-irradiation treatments can influence the inactivation of micro-organisms, as identified in the early studies in the '50s (Niven, 1958). Absence of oxygen, and the removal of water increase the resistance of micro-organisms to radiation. This is due to the elimination of the indirect effect of the free radicals from water and the reduction in the mobility of free radicals that are formed.

Many of the bacteria in foods are quite sensitive to radiation, including Salmonella. In radiation sterilization (~25 kGy), the *Clostridium botulinum* spores are eliminated but some of them survive in radiation pasteurization (≤10 kGy) of foods. However, these spores do not grow in the presence of oxygen and under appropriate refrigeration, and thus should not pose a problem.

Concerns about the effects of irradiation on micro-organisms were raised at the Food Hygiene Committee of the Codex Alimentarius Commission in 1979 (van Kooij, 1985). These related to possible increased radiation resistance and increased pathogenicity associated with genetic changes of surviving micro-organisms, and destruction of radiation sensitive cells leaving behind the more resistant

organisms, for example, *Clostridium botulinum* spores, which may then develop without the competitive growth of the spoilage flora. The Board of the International Committee on Food Microbiology and Hygiene (ICFMH) of the International Union of Microbiological Societies (IUMS) addressed these concerns at its meeting in 1982. Having analyzed the available scientific data, the Board concluded that there was no cause for concern. There would be no qualitative difference between the kind of mutation induced by ionizing radiation and that induced by any other pasteurization/partial preservation methods such as heat treatment or vacuum drying (Codex Alimentarius Commission, 1983) and that modern food handling technology was adequate to control problems created by suppression of spoilage micro-organisms. They concluded that food irradiation is an important addition to the methods of control of foodborne pathogens.

Chemical Effects

Although the primary aim of irradiation of foods is to control micro-organisms, the food itself also absorbs radiation energy, resulting in small chemical changes. These changes are a result of the formation of ionized and excited molecular species and free radicals, which lead to the formation of stable products (Dragnić & Dragnić, 1971; Simic, 1983; Singh & Singh, 1982). Even though the chemical effects are relatively minor, a large amount of effort has gone into understanding them to ensure that any toxic products formed are identified. Detailed results of all such studies were taken into account by the CAC while making their recommendations on food irradiation.

The type and quality of chemical changes are dependent on the composition of foods, for example the relative amounts of sugars, free amino acids, proteins, fat, and vitamins. The radiation chemistry of amino acids and proteins remains an active field of research due to its relevance in radiobiology and food irradiation (Delincée, 1983; Simic, 1983; Singh & Singh, 1982; Taub, 1983). The range of possible chemical and physical changes seen on irradiation of proteins in foods is similar to that seen on other treatments such as heating. At low doses (≤10 kGy), the effects of these changes are negligible. However, at

high doses (≥ 25 kGy) these reactions contribute to off-flavors, if irradiations are carried out at room temperatures (20°C), but not if done at lower temperatures.

Lipid peroxidation is a well known phenomenon which leads to rancidity. In the absence of oxygen, irradiation leads to cleavage of lipids at various sites of the molecule and a variety of products result which depend mainly on the fatty acid composition of the lipids/fats (Delincée, 1983; Nawar, 1983a; Taub, 1983). In the presence of oxygen, peroxides and hydroperoxides are formed and autooxidation of unsaturated lipids is accelerated (Aust & Svingen, 1982; Delincée, 1983; Pryor, 1976). In general, the results suggest that irradiation of triglycerides and other food components leads to much lower decomposition than heating at normal cooking or frying temperatures (Basson, 1983a; Nawar, 1983b). To minimize the radiation induced lipid peroxidation of foods containing a high proportion of fat, they should preferably be irradiated in the absence of oxygen; for example, bacon is generally vacuum-packed for irradiation (Wierbicki, 1981).

Temperature of food is an important parameter during radiation processing. Brasch and Huber (1947) were the first to suggest irradiation of foods at -40°C to minimize the chemical side reactions. On freezing to -5°C or lower, the yields of chemical products are dramatically reduced (Taub, 1983). Irradiation of various meats has shown that the protection provided by freezing seems to be maximum at about -20°C (Diehl, 1983). The gain in food quality, by irradiation of frozen foods, is somewhat offset by the higher doses needed to inactivate micro-organisms. The more radiation resistant bacterial spores, however, are only marginally protected by freezing, so that for radiation sterilization, the gain in food quality due to freezing is considerable. Low temperatures are useful mainly with foods which are irradiated at high doses (~ 25 kGy, for storage at room temperature) and contain a large proportion of fats such as pork and bacon. However, all foods do not lend themselves to irradiation at such low temperatures (e.g., fruits); such foods generally do not contain high levels of fat and usually require much lower doses of irradiation. Thus, in general, the temperature for irradiation should be low but compatible with

the food and its intended use after irradiation.

One component of food spoilage is the continued action of autolytic enzymes. However, they are only partially inactivated at doses permitted for food irradiation. Their inactivation increases with temperature and dose (Shultz, Cohen, & Wierbicki, 1975). In foods where much longer shelf life is aimed at, heat inactivation of these enzymes is required in combination with irradiation.

Nutritional Quality

At the doses recommended by the Codex Alimentarius Commission, irradiation generally does not cause significant loss in the nutritional quality of foods (Graham, 1980; Murray, 1983; Tajuma, Morita, & Fujimaki, 1970; Taub, Robbins, Simic, Walker, & Wierbicki, 1979).

The effects of irradiation on wheat lipids have been assessed by several investigators (Chung, Finney, & Pomeranz, 1967; Rao, Vakil, Bandyopadhyay, & Sreenivasan, 1978) and in general, lipids in cereals are not degraded at the doses used for disinfestation (< 2 kGy). Similarly, no changes were detected in the levels of free amino acids at such doses (Rao, Vakil, & Sreenivasan, 1978). Analysis of the amino acids in beef irradiated in the frozen state ($-30 \pm 10^{\circ}\text{C}$) to a dose of 47-72 kGy (gamma or electron irradiation) showed no significant differences compared to the unirradiated controls (Taub et al., 1979a).

The primary aim of irradiation of foods is to control micro-organisms.

Amongst the vitamins, thiamine (vitamin B), when irradiated in solution, is quite sensitive; however, in irradiated foods it shows good retention (Murray, 1983). Amongst the other vitamins, C, E, and K are fairly radiation sensitive in foods, but as would be expected, losses are lower with low doses than with high doses. Such losses are similar to those experienced in heat processing of foods (Graham, 1980). In fruits exposed to doses up to 3 kGy, there is over 85% retention of vitamin C (Graham, 1980). Vitamin E is relatively radiation stable in the absence of oxygen. For example,

exclusion of oxygen by packaging under nitrogen reduces the loss of vitamin E in rolled oats from 65% (in air) to 5% (in N_2) following irradiation at 1 kGy and storage for 8 months (Basson, 1983b). Vacuum packaging is equally effective. The radiation-induced sensitivity of vitamin E in foods can, therefore, be reduced by vacuum packaging.

Safety

Evaluation of the large body of scientific data on animal feeding studies (Barna, 1979) on the safety of irradiated foods has received high priority as evidenced by the IAEA participation in the International project on Food Irradiation and its support of a Coordinated Research Project on Wholesomeness Studies in several Member States. This evaluation resulted in the recommendation that irradiation of foods up to an overall average dose of 10 kGy is safe and poses no toxicological threat. For example, Conning (1983) evaluated results of feeding experiments on irradiated animal feed and concluded that •all animals thrived normally on irradiated diets (dose ≤ 15 kGy), •diets irradiated at 25 kGy required supplementation by vitamins, and •statistical comparisons did not identify adverse effects on reproductive ability. Elias and Cohen (1983) have also reviewed toxicology of irradiated foods and have concluded that at doses averaging 10 kGy, there is no evidence of any toxicologically significant compounds being formed in the irradiated foods.

The emphasis on toxicity evaluation as a requirement for clearance has now shifted from animal feeding studies to radiation-chemical analyses in foods (chemiclearance) (Basson, Beyers, Ehlermann, & van der Linde, 1983; Diehl, 1983). The principle of chemiclearance is based on the assumption that if details of radiolytic product formation in any given food are known, then the product formation in other generically related foods can be quantitatively predicted. There is considerable evidence to support the view that formation of radiolytic products in each class of food is rather

similar and that the radiolytic products in related foods can be predicted from detailed studies in one of them (Basson, 1983a). Since similar radiolytic reactions occur in homologous constituents of the protein, lipid or carbohydrate components of different foods, common radiolytic products will be formed in predictable yields (Basson, 1983a). Basson et al. (1983) have presented a detailed model for predicting product formation from irradiated fruits. Similarity of products formed on radiolysis of various meats have also been reported (Merritt, 1984; Taub, 1981; Taub et al., 1979). For example, the yields of C₅ to C₈ hydrocarbons from beef, chicken, pork, ham and bacon increase linearly with their fat content, on irradiation at -40°C (Merritt, Angelini, & Graham, 1978).

Conclusion

A large amount of systematic and thorough research and development work on radiation processing of foods has been carried out in the last 40 years. We have more information on this process today than we have on most other processes which have been in use for quite some time. In fact, restrictions are being placed on many of the other processes as they have become better understood, for example on the use of nitrites in cured meats and the use of ethylene dibromide for disinfestation of fruits. Radiation processing of foods reduces food spoilage and contributes to better health through control of food-related pathogens. At what rate radiation processing makes a contribution on a commercial scale will depend upon the decisions of all interested parties including the regulatory bodies, the research and development groups, the suppliers of irradiation equipment, the food processors and, most importantly, the consumers. □

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Health Issues

The Interface between Professional Nutritionists and the Public

No other health science is subject to as much public interest and controversy as nutrition. This is due to the fact that the public participates in the application of the science of nutrition in a way that it does not in other health sciences. The quality and quantity of prescription drugs that may be taken, for example, are determined by the health professions and by government. The quality and quantity of the diet consumed is determined by individual consumers.

Abstract

Home economists have been the traditional source of advice about nutrition for consumers. Historically, they have performed in this role with dedication and skill and with the support of nutritional scientists. Recently their task has been made more difficult by direct dissemination through the mass communications media of unsubstantiated and conflicting information emanating from scientists and health agencies, and by misinformation emanating from health practitioners and quacks. This article suggests some ways in which community nutritionists can deal with this problem.

Résumé

Dans le passé, les conseillers en économie familiale ont fourni aux consommateurs des conseils en matière d'alimentation, et ils ont rempli ce rôle avec dévouement et compétence avec l'appui des scientifiques de ce domaine. Leur tâche est devenue plus difficile récemment à cause de la diffusion directe par les médias de renseignements non vérifiés et contradictoires fournis par des hygiénistes et des personnes non compétentes. Cet article propose des moyens qui peuvent permettre aux diététiciens communautaires de surmonter ce problème.

Consciously or unconsciously, consumers make health decisions every time they visit the supermarket or health food store. Public health nutritionists have a responsibility to provide them with the information they need to make intelligent decisions.

Unfortunately, research scientists have not always assisted nutritionists in discharging this responsibility. The recommendation that vitamin C should be taken to prevent colds and cancer was communicated to the public by a Nobel Laureate over the heads of professional nutritionists. Its implementation was made possible by the fact that vitamin C is available directly to the consumers. This was not possible in the case of krebiozin, a proposed cancer cure promoted by another Nobel Laureate some years ago, because it was classified as an experimental drug and therefore was not available to the public. The current calcium craze is the result of public promotion of the view of some orthopedists that consuming 1500 mg of calcium per day will prevent postmenopausal osteoporosis. Neither the public nor community nutritionists have been told that it is based on a single study carried out on one sample of 41 women, or that the results of other studies carried out in the United States, Denmark, the Netherlands, and Switzerland do not support this view. Premature publicity given to "break-throughs" that fail to materialize undercuts the credibility of both the scientific community and of nutritionists at the interface with the public.

In some instances, professional groups and health agencies also contribute to the problems of public health nutritionists by releasing incomplete, biased or conflicting information. For example, investigators involved in the Lipid Research Clinic's Coronary Prevention Trial appeared repeatedly on television to announce that they had obtained

H.H. Draper, PhD, is a professor in the Department of Nutritional Sciences at the University of Guelph.

H.H. Draper

"final proof" of a link between cholesterol and heart disease. It was not made clear that they were referring to blood cholesterol and not dietary cholesterol, or that their study was conducted on patients with high blood cholesterol who were given a cholesterol-lowering drug. The important public health issue, whether dietary cholesterol has a clinically important effect on blood cholesterol in the general population, remains as controversial as ever. In the cancer field, the Canadian Cancer Society and a U.S. National Academy of Sciences committee have issued dietary recommendations for the prevention of cancer which have been disputed by other societies and another committee of the Academy. Fortunately, these recommendations are similar to those of Canada's Food Guide and can be endorsed for general nutritional health if not for cancer prevention.

In some respects, the pronouncements of quacks and faddists are easier for public health nutritionists to deal with than those of overzealous researchers because they are usually based on readily refutable arguments. The medical quack presents a special problem because of general respect for the opinions of physicians. Nutritionists should bring to the attention of medical societies the promotion of toxic doses of vitamins and other dangerous dietary practices by physicians and "health practitioners".

The media tends to display a preference for unconventional views on nutrition and bad news about the quality and safety of the diet. A columnist for a major Toronto newspaper recently asserted, for example, that diet is the main cause of cancer. The inference was that food additives and chemical contaminants are the culprits, even though cancer epidemiologists have found no correlation whatever between these substances and cancer incidence. A public service

television station in Ontario regularly features a proponent of intakes of vitamin A known to be toxic, as well as other dietary practices having no foundation in nutritional science. The leading proponent of megadoses of vitamin C is still interviewed, seemingly every time he comes to town, even though his claims for its benefits have been disproved and are obsolete issues in research. Academic nutritionists are seldom invited to appear. Some researchers refuse to engage in public controversies because of their emotional and subprofessional content. Unfortunately, this leaves the public arena to the pseudoscientists and the quacks, and community nutritionists to fend for themselves.

How can home economists narrow the gap between the scientific community and the public, and how can a

specific diseases, and by government departments. These statements should be of value to community nutritionists in dealing with the conflicting views of scientists, answering questions asked by consumers, and combatting misinformation.

Nutritionists should protest to the managers of television and radio stations, and the editors of publications which feature purveyors of dangerous and false information. They should also commend those who disseminate accurate information. Letters of protest should be accompanied by copies of authoritative statements on the subject so that they are not interpreted as personal opinions. A careful distinction should be made between information that is dangerous and false and that which is merely unconventional.

Consciously or unconsciously, consumers make health decisions every time they visit the supermarket.

"consistent, substantiated message" be delivered to individual consumers? These are cogent questions and there are no simple answers.

As already indicated, one obstacle to the delivery of consistent, substantiated messages to the consumer lies in inconsistent, unsubstantiated messages emanating from the scientific community. Irresponsible public statements by scientists are, lamentably, a significant cause of pervasive confusion and anxiety among the public about the quality and safety of the food supply.

As an aid to nutritionists and others at the interface with the public, the National Institute of Nutrition is developing a series of position papers on controversial issues in nutrition. These papers, written by authorities and subjected to rigorous review, represent the best available assessment of the current state of knowledge on each topic. Similar papers have been, or are being, developed by other professional societies, private foundations and agencies concerned with

For their own peace of mind, if nothing else, nutritionists should become reconciled to the fact that food fads and folklore have been endemic in human societies for thousands of years and are not likely to go away. For the most part, they are harmless. Nor should nutritionists be unduly alarmed by deviations from the three-meals-a-day and four-food-group traditions. There is a tendency to exaggerate the prevalence of undernutrition in our society and to fail to recognize the seriousness of overnutrition. Obesity and its associated disease correlates probably constitute the most serious public health nutrition problem; it is also the problem about which it is most difficult for the scientific community to give applied nutritionists practical advice.

Nutritional science is currently experiencing a wave of anti-professional fundamentalism. Nutritionists should not despair of an eventual return of confidence in the profession and in nutrition as a science. □

Apparel's New Role of Function and Comfort

Abstract

The new focus of apparel design is directed to specific needs which include activity or job related situations and handicapped or elderly persons. Both function and comfort factors are investigated and prioritized before fashion aspects are considered. In Europe, two distinct size categories have been developed to meet the needs of specific groups in the population. These include the elderly females 65 years and over, and male wheelchair users. Designers working with elderly and handicapped people are successfully developing apparel based on these new sizes and proportions. Samples of these designs are often on display at centralized resource centres. These centres collect and disseminate information and advice for persons with special needs, as well as displaying aids and devices to assist in daily living. If similar centres were started in Canada, they would create positions for clothing specialists and home economists.

Résumé

Le nouveau design vestimentaire vise d'abord à répondre à des besoins particuliers qui comprennent notamment les situations reliées à un emploi ou à une activité et les besoins des personnes âgées ou handicapées. Les facteurs relatifs à la fonction et au confort font l'objet d'une étude où on définit leur priorité avant de se pencher sur les facteurs reliés à la mode. En Europe, on a établi deux catégories distinctes de tailles afin de répondre aux besoins de groupes précis de la population qui comprennent notamment les femmes de 65 ans et plus ainsi que les utilisateurs de fauteuils roulants. Les dessinateurs travaillant avec les personnes âgées et handicapées remportent beaucoup de succès en dessinant des vêtements à partir de ces nouvelles tailles et proportions. On trouve souvent de ces vêtements en étalage dans les centres de ressources centralisés. Ces centres recueillent et diffusent des renseignements et des conseils destinés aux personnes ayant des besoins spéciaux, en plus présenter des aides et appareils pour les aider dans la vie courante. L'établissement de centres semblables au Canada permettrait de créer des postes pour les spécialistes de l'habillement et de l'économie familiale.

Elizabeth Shannon

A new branch of apparel design has been gaining momentum during the last decade. The thrust is concerned with designing for special needs or specific situations. When starting the design process a number of information seeking stages are undertaken to identify the basic needs, rather than starting the process with creative and fashion oriented ideas. Of primary concern are the functional aspects and the comfort factors related to any given situation.

The initial stage of the design process involves identifying the need and exploring as many of the critical aspects as possible by viewing the activities, analyzing the situation, and engaging in discussion with the participants. In the event it is a physical activity such as one of the currently popular "participation" activities, an analysis of body movements, the range of the flexing of the joints, and the total extension of the limbs all need to be taken into consideration. Once the extent of the activity has been documented, discussion with participants can increase one's insight into the needs created by the activity. The information obtained can be prioritized so the most important identified needs are considered by the designer when developing a prototype. This prototype or sample garment needs to be wear tested to evaluate its effectiveness in meeting the criteria. Any changes or improvements can be carried out and evaluated prior to finalizing the design and its fabrication. At this stage of the process the designer's creative ability and knowledge of fashion trends are

required to create a fashionably acceptable outfit that meets the functional requirements of the identified activity.

This functional design technique can be used effectively and profitably for clothing for the elderly and the handicapped, for sport related situations of active sports to spectator sportswear. Another area is with occupation related jobs where frequently some form of protection is required to improve the safety of the worker. Today, a high percentage of this research is generated by job related situations where maximum function and comfort of the apparel can aid in improved worker efficiency. The information generated by this research can be beneficial to other areas of apparel design.

One of the leading North American researchers in functional clothing is Susan Watkins of Cornell University. In her book, *Clothing, the Portable Environment*, Watkins (1984) sums up the research related to movement by stating:

Ease of mobility in clothing is related both to comfort and function. If an individual can move in a garment without straining it, the individual is generally more comfortable. If people don't have to work against their clothing, they can perform more effectively. (p. 144).

Other topics that have been investigated are fabrication in relation to environmental conditions, protection from impact, and the suitability of special design features and fasteners.

While on research study leave in Europe, my colleague, Naomi Reich, of the University of Arizona, and I were privileged to visit a limited number of research institutes, universities, rehabilitation facilities, and industries that

Elizabeth Shannon, BSc(HEC) (Manitoba), MS(C&T) (Iowa State College); Associate Professor, Clothing and Textiles Department, Faculty of Human Ecology, University of Manitoba.

address areas of clothing, textiles and/or rehabilitation (Shannon & Reich, 1985). Of particular interest was the impact of the study of clothing, its design and comfort considerations in relation to special needs, especially those experienced by the elderly and handicapped. We observed that the research at many of these locations related to similar topics. Three of these topics affecting the apparel of the elderly and handicapped people — sizing system, functional design, and resource centres — are presented in this paper.

Sizing Systems

Sweden and West Germany have updated their apparel sizing systems to reflect the physical changes that have occurred in their populations. Both countries reported important changes in body measurements, thus warranting the time and finances required to revise their sizing information. At the same time both countries have introduced another important sizing category.

Sweden, at the Swedish Institute for Textile Research, has established a sizing system for females 65 years and over (Storlekssystem, n.d.). It is denoted by the letter E after a size number along with heights of 160 and 168 cm. The outstanding figure differences are located at the waist, hip, and inseam of the leg. When comparing the series of body measurements of E and the 18- to 65-year group with identical bust measurements, one finds the E group is 2 cm larger in the hip and 6 cm larger in the waist, with 1 cm less in the inseam leg measurement. The centre back length is 2.2 cm longer reflecting the characteristic rounding of the back shoulder area. A high-hip measurement is given in the sizing as this area is 7 cm greater than the average. They also recorded a weight increase of 2 kg. The measurement of the crotch seamline extending from the front waistline through the crotch to the back waistline is 3.5 cm greater. These body changes and proportional differences are important considerations when designing for the elderly-female figure. These detailed sizing measurements for the elderly are a valuable addition to a more comprehensive understanding of the body changes experienced during the aging process and can contribute to improved design and fit in apparel.

At the Hohenstein Institute in Bonningheim, West Germany, it was interesting to learn of their research on developing body measurement for the male in a wheel chair (E. Klepse, personal communication, September 1984). They initially took measurements of 250 wheelchair users, but the results were erratic mainly due to the level of atrophy related to the users physical condition. So in order to document the differences between the standing and seated figure they measured 250 non-handicapped males. They recorded three main areas of difference: an increase in the waist and thigh measurements; an 11-12% increase in the back length from the neck under the seated figure and to the back of the knee; a diagonal measurement from the back of the seat to the front waist. Using these measurements they have developed a sizing system and basic pant block patterns for the permanently seated figure, and another set of blocks using half of the amount of the changes for the partially seated figure. To determine the effectiveness of the blocks, a manufacturer produced sample pants for a wear trial.

After the wear trial by 35 males the blocks were refined and graded for the sizes in the system. These graded blocks and the detailed information of

At present neither Canada or the United States have attempted to include other distinct categories as an integral part of the sizing system. The success of the two projects in Europe should give us some impetus to look closely at our population in an attempt to identify segments that are not adequately served by the present sizing systems.

Functional Design

During our study leave, we were in contact with a number of designers who started their careers with the challenge of designing for a handicapped individual or for a specific physical condition. In most cases they experienced difficulty in obtaining funds but once started they have expanded their efforts in an attempt to make it a viable career.

In Sweden, Gun Moberg of Gumo Design started by creating a pant design for the seated female figure. Her design involves placing the centre-back seamline on garment bias. This allows more give at the back for the seated figure. The company has expanded its production into skirts, rain capes with hoods, bathrobes, daywear, and winter outerwear. They produce high-quality products that are colorful, fashionable, and easy to care for. Their yearly catalogue shows a

A comprehensive understanding of the body changes experienced during the aging process can contribute to improved design and fit in apparel.

the measurements are now available to the apparel industry of West Germany. The interesting features of the pant design are a diamond shaped dart at the back of the knee to reduce excess fabric, and a lowered hemline at the front creaseline which tapers up at the side and inseam seam. The lower torso of the pant has been shortened in the front to reduce excess fabric folds and the crotch seam has been moved 2 cm towards the back to allow adequate length for the zipper opening. The back has been lengthened to accommodate the extra length required for the sitting position.

wide variety of designs for all ages from small children through to the elderly. Of particular interest are the designs for elderly women, based on the new (E) sizing system.

One unique design for the wheelchair user is an outerwear coat design with a subtle front flare located on either side of the front closure. This flare allows the garment to stay closed when the wearer is seated. This design eliminates the possibility of the upper leg being exposed and any strain through the hip area. The design has been fabricated for rainwear and

winter wear by using water-repellent, quilted, or fun-fur fabrics. The innovative addition of leggings to match produces a stunning outfit which meets the needs of the wearer along with being fashionably acceptable (see Figure 1).



Figure 1. Coat and legging design by Gun Moberg at Gumo Design.

S.G. Design in Naverland, just outside Copenhagen, is managed by a wheelchair user. He was the model that the designer Karen Hoskultsson used when developing their solution to the needs of the wheelchair user. After the design was established, the company developed a data base of measurements for the seated male and then identified a grid of 10 sizes. Using these sizes a pant pattern was developed eliminating the centre-back seamline and using a bias cut for the lower back torso section of the pant. This section extends to the knee where the lower leg is joined to it. The front section is a separate unit which extends to the upper thigh region where the rest of the front leg is attached. Because the upper front and back patterns are separate there are 40 possible combinations to the system. These combinations were tested to see if they adequately met the needs of the seated figure. Now the basic principle is being used to create similar garments for women and children.

Another of their innovative designs are leg covering bags that are suitable for inclement weather. They need to be ordered to fit the type and model of

wheelchair, as the straps on the bag attach to the back and the footrest of the wheelchair. The leg covering bag opens up completely and closes easily with zippers on both sides. The bag features a built in curvature to accommodate the bended knee configuration (see Figure 2).

In Helsinki, Finland, Estelle Bergenheim (personal communication, August 1984) and Rita-Liisa Haavisto (personal communication, August 1984) have concentrated on children's wear designs and have included many features to assist during dressing activities. Their designs include trousers for a child confined to a wheelchair, overalls for a cerebral palsy boy, and an outdoor snowsuit in two pieces to accommodate leg braces for the child with a defective spinal cord. They are anticipating that these prototype designs and the ideas incorporated in them will be used to design and manufacture suitable clothing. They are seeking government assistance in order to set up an apparel manufacturing industry within a sheltered workshop situation so profit and feasibility is not of paramount importance.

Resource Centres

The idea of a resource centre where one can obtain information and ideas is important for persons with special needs and also for the caregivers of

these people. It is a popular method for the dissemination of information, ideas, and advice.

National Association of Neurologically Disabled (NHR). The NHR resource centre in Stockholm displays technical aids which are well documented with information regarding their use. There is adequate space and lighting for viewing and in some cases for trying out the equipment (e.g., wheelchairs, mobility toys for children, or kitchen equipment). A display of incontinence products shows all the types available in Sweden and highlights the outstanding features of each design. The clothing display features specially designed clothing that is produced in Sweden and examples of garments from the other Scandinavian countries. Along with the displays, knowledgeable personnel are on hand to assist and respond to any inquiries.

Swedish Design Centre. At the Design Centre in downtown Stockholm, a large area is used to display household furnishings that are functionally designed to adjust to many special needs. The area is sectioned into rooms to display suitably designed furniture and equipment that would meet the requirements of all people (e.g., the adjustability of table heights to suit standing or sitting positions and a variety of statures).



Figure 2. Leg covering bag for wheelchair users; design by Karen Hoskultsson at SG Design.

Racks with examples of well-designed children's wear include rainwear, winter clothing, and life jackets. The area has a small but accessible library of current information with copies available for distribution to the public.

Disabled Living Foundation. This resource centre in London, England, is a charitable trust concerned with handicapped and elderly persons and their needs for all aspects of daily life. The facilities with its equipment, displays, and library of information are available to disabled individuals, their families, and any caregivers, whether professional or voluntary. New information and products are constantly added to their resources and are included in the permanent display area.

At the centre persons with special needs can receive advice on a variety of

for a consultation as many of the items under discussion are available at the centre.

The Clothing Specialist at the centre is Iedorette Kiewiet de Jonge (personal communication, October 1984). Her unique philosophy is that there are conventional clothing designs available on the market that meet a high percentage of the special clothing needs. Each month, Iedorette scouts the stores for suitable and functional clothing which is loaned to the centre for display during the next month. In this way the display is updated and reflects the current fashion trends in children's and women's wear. She has found sportswear stores a good source of functional and fashionable clothing. Along with the clothing displays, there is a clothing information section which contains information on seven functions: easy on/off clothing; clothing for

Conclusion

The emphasis on the function and comfort of apparel has contributed greatly to improved clothing design. This approach to design has helped a number of distinct groups in our society. The results achieved by this means will encourage others to seek suitable designs for specific situations, thus opening the functional design area for clothing specialists.

We need to review our sizing system in light of the European trend to expanding their systems to include distinct categories. Is this approach feasible in Canada or should we extrapolate the differences established in Europe and apply these to our system?

As the percentage of elderly in the population increases and the trend to assist elderly to remain in their homes continues, the need for resource centres will increase greatly. These centres can be equipped to offer assistance in all phases of daily living and thus will require clothing specialists along with home economists to offer professional advice and assistance. □

Canada could support resource centres that address most of the disabling conditions existing in our population.

aids, have an opportunity to try out specific products, and also to consult with professional advisers. They have found that clients require some training to obtain the maximum advantage out of the aids or supportive devices. A clothing specialist makes recommendations on design features that increase one's independence, and on how to adapt clothing for specific needs.

Other activities of the Foundation involve the publication of books covering various aspects of daily living. The most recent publication covered footwear and foot care for adults and disabled children. This type of information is used in their workshops and can be borrowed from the Foundation for presentation in other locations in England. One of their concerns is the dissemination of information to any persons who require it.

The Information and Documentation Centre (IDC). In Utrecht, Netherlands, the IDC is conveniently located adjacent to the downtown shopping mall. They encourage people to come

wheelchair users; clothes for warmth; lightweight clothing; deviation of body proportions; drooling problem; and incontinence conditions. Included in this section are other up-to-date references; one of the books, on adapting fashion for clothing for the handicapped, was a collaborative effort between clothing specialists and occupational therapists (Pas Mode Aan, 1978).

These resource centres have been effective in collecting together a wide variety of resources and aids for an individual to view and test before deciding on their suitability; and have the facilities and personnel to keep the information and resources up-to-date.

It would seem that Canada could support clothing centres that address most of the disabling conditions existing in our population. According to a 1984 survey conducted by Statistics Canada (1986) it is estimated that one out of every eight Canadians is disabled in some way. Resources centres could offer these persons advice and information to help maintain their independence.

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Editor's note. The following addresses were provided by the author:

- Disabled Living Foundation, Clothing Advisory Service, 380-384 Harrow Road, London, England W92HU.
- Gumo Design. Gumo, A.M., Funktionella Kläder, Box 513, 51008 Borås, Sweden.
- Storlekssystem för demkläder Måttlistor och marknads andelstabeller. TEFO, Fack, 402 20 Göteborg, Sweden.
- SG Design, Kollektion. Naverland 1. 2600 Glostrup Danmark.

Reflections on the Nestlé Boycott

David Hallman

Abstract

The events that lead up to the Nestlé Boycott and the years of the boycott are reviewed. The characteristics about the boycott that may explain why it generated such wide support are discussed. It is indicated that the experience of this boycott can be transferred to other development issues.

Résumé

Voici une revue des événements qui ont abouti au boycottage de Nestlé, et des années qu'il a durées. On discute des faits particuliers qui peuvent expliquer pourquoi ce boycottage a reçu un tel appui, et il semble que l'expérience de ce boycottage pourrait servir pour d'autres litiges en suspens.

The Nestlé Boycott was an attempt by ordinary people to change the marketing practices of a huge multinational in order to protect the health of Third World infants. And it worked!

During the early 1970s, health-workers in the Third World discovered a disquieting trend: the average age of infants being admitted to clinics for severe malnutrition was dropping to about six or nine months of age. Previously it had been over 12 months. Anecdotal and then systematic research pointed to the cause. A major shift in infant feeding practices was occurring with more and more mothers choosing to bottlefeed rather than breastfeed. Studies began to show that bottlefed infants were three to five times as likely to suffer severe malnutrition and die than were breastfed babies.

Infant formula is very difficult to prepare safely in many poor households. Lack of pure water and sterilization facilities, combined with the need

to dilute and stretch the formula, exposed babies to infections and disease. At the same time, they were deprived of the natural immunities and antibodies present in breastmilk which can protect infants from disease. UNICEF has estimated that 10 million babies each year have been suffering malnutrition because of improper formula use. About one million of them die annually.

Various explanations have been suggested to explain the shift to formula feeding. One of the most consistent explanations is the aggressive promotion of formula by a variety of food and pharmaceutical companies through the widescale distribution of free samples, promotional literature and posters, and courting of health professionals. The impression conveyed by these companies, of which Nestlé was by far the largest (having between $\frac{1}{3}$ and $\frac{1}{2}$ of the infant formula market in the Third World), was that formula feeding was the "modern way" to feed one's baby.

International health agencies tried to persuade the companies to change their approach. These efforts were unsuccessful. In the mid to late 1970s, Europeans and North Americans began to learn of the tragedy through development education programs and churches. Campaigns to put pressure on the companies grew as ordinary people became outraged that marketing and profits seemed to be taking precedence over the health of innocent babies. The Nestlé Boycott was the most visible of these campaigns.

UNICEF and The World Health Organization (WHO) became involved with the result that an International Code on the Marketing of Breastmilk Substitutes was adopted in May of 1981 by a vote of 118 to 1 (the U.S. was the only country to vote against it).

Editor's note: The CHEA Infant and Child Feeding Position Paper, published in the Fall 1979 issue of the *CHEJ* (p. 199), resulted in much discussion and dialogue on infant feeding practices and manufacturers' marketing practices. (See "Letters", in the following issues of the *CHEJ*: Spring 1980, p. 140; Summer 1980, p. 186; Fall 1980, p. 262; Summer 1981, p. 186; and Fall 1981, p. 233.) Those involved in the discussions and deliberations of the early 1980s will find this article particularly relevant.

Since then, the boycott has concentrated on getting Nestlé to agree to abide fully by the Code.

Nestlé has changed from being the most aggressive promoter of formula to being among the more responsible companies in the industry. By organizing through a strategy like the Nestlé Boycott, ordinary citizens have been able to change the direction of marketing of a major multinational.

If people can recognize the success they've had, it would aid in counteracting the sense of helplessness that many experience in the face of massive development problems. Not only do the dimensions of problems like poverty and malnutrition seem immense, but people have learned over the past decade how huge multinationals and governments have sometimes exacerbated those problems through acting in their own economic self-interest. The Nestlé Boycott demonstrated how people can have an effect through planning, collective efforts, commitment and perseverance.

Nestlé has fought the boycott since the beginning — an indication that they viewed it as a serious threat, either real or potential. At several stages, it was apparent that they made revisions to their policies and practices when they became convinced that the boycotters would not reduce the pressure. These revisions were studied by the boycotting groups. Their assessment was usually that the revisions were an improvement but they agreed that Nestlé still had to make further changes in order to meet the boycott demands.

In late 1979 and through 1980, UNICEF and WHO held consultations with Third World health professionals and governments, representatives of industry and of the critics of industry. This process led to the development of an international code on the marketing of breastmilk substitutes. Nestlé tried to present the image of themselves co-operating with this effort. This, they maintained, was sufficient rationale for the churches to withdraw their endorsement of the boycott. However, the boycott-endorsing organizations maintained that, until they saw Nestlé's policies specifically prohibiting further promotion of infant formula and evidence that this policy was being implemented in the field, their pressure would be maintained.

David Hallman represented Canadian churches and organizations on the International Nestlé Boycott Committee and was secretary of the international steering committee for the boycott. He works for the Social Issues and Justice division in the national office of the United Church of Canada.

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In May 1981, the World Health Organization adopted the Code. Nestlé declared that they were in agreement with the aims and principles of the Code and therefore the boycott was no longer necessary. Again, the boycott-endorsing organizations said that Nestlé needed to demonstrate, both in policy and practice, that they subscribe not only to the aims and principles but the specific provisions of the Code which would eliminate mass distribution of free samples, the involvement of company personnel in the health system and would require warnings on all literature and labels about the risk of inappropriate formula feeding. The boycott continued.

In March of 1982, Nestlé took a step further, releasing detailed guidelines that were being sent to their field personnel about how to implement the provisions of the WHO Code. For a brief period, it appeared that Nestlé was meeting the demands of the boycott. In the publicity surrounding the release of these guidelines, Nestlé claimed that the boycott was no longer necessary. However, once the boycotting organizations had an opportunity to do a detailed analysis of the guidelines that Nestlé was distributing, they found that there were wide discrepancies between the provisions of the WHO Code and the guidelines of the company. Monitoring information from the Third World also showed that promotion was continuing. The organizations thus said that the boycott must continue until Nestlé faithfully translated the WHO provisions into policy.

In October of 1982, Nestlé made some further revisions to their guidelines, recognizing that they would have to go further. Again, the boycotting organizations, upon doing a detailed analysis, congratulated Nestlé on some of their improvements but indicated that there were still enough discrepancies between their policy and the Code that the boycott could not be lifted.

During 1983, Nestlé released a number of clarifications of their policy which, in fact, amounted to revisions to bring it closer in line to the WHO Code.

All through the campaign, the perseverance of the boycotting organizations and the solidarity of the support amongst the various organizations have forced the company to

continually make changes to bring their policies closer in line with the WHO Code.

There were a number of characteristics about the boycott that may explain why it generated such wide support:

- *The issue was tragic and emotional* — the aggressive promotion of infant formula was leading to more bottle-feeding which resulted in malnutrition for many infants in poverty areas.
- *The goal was clear* — to stop Nestlé's aggressive promotion of formula.
- *The strategy was comprehensible* — not buying Nestlé products would place economic pressure on the company to change their unacceptable policies.
- *The action was simple* — people in their weekly pattern of shopping could buy an alternate product rather than Nestlé's.
- *The support was available* — having up-to-date information fed through networks like United Church Women's Groups, Ten Days for Development Groups and Outreach Committees helped people keep informed and gave them a sense of acting collectively.

Critical to the success of the infant formula campaign have been the links between groups in industrialized countries and in the Third World. The roles were different but the mutual support was essential.

Data on the effects of promotion, on the feeding practices of families with their infants has come from health professionals, medical missionaries and consumer groups in the Third World. They have been a primary source of continued monitoring of the promotional practices of the companies over the years. The religious groups and coalitions in industrialized countries have received this information and used it in their efforts to pressure the companies to change. Such groups in developed countries had more leverage because they could gain access to senior decision-making levels in the companies and could organize consumers to place pressure on them. The most obvious example, of course,

is the organizing and promotion of the Nestlé Boycott.

Both the groups in the developing countries and in the industrialized nations have benefitted from this relationship. The Third World groups have brought to our attention the kinds of practices that our multinationals are engaged in and we are starting to recognize our responsibility to hold them accountable. The whole issue has further raised consciousness about issues of infant nutrition and health, even in our own countries. For the Third World groups, they have gained political leverage with the companies through the efforts of the international boycott groups which they never would have been able to achieve working on their own.

It has been women who have by and large carried the Nestlé Boycott. Through women's church and voluntary networks there has been a great deal of education, organizing of consumers to boycott Nestlé's products, letter-writing when that was required and petition-signing.

Part of the explanation lies in the ability of women in industrialized countries to identify with the women in the Third World who were being victimized by the high pressure promotional efforts of the multinationals. Many women in our countries have experienced similar kinds of pressure to formula-feed rather than breast-feed when they have had babies. But this is not a sufficient explanation. It appears that women individually and in their organized structures have committed more time over the years to development education concerns. When a specific opportunity arose to take action, they were prepared to move.

It is important for us to learn from the Nestlé Boycott experience and generalize our learnings to other development issues like the promotion of tobacco, alcohol, pharmaceuticals and pesticides in the Third World. There are broader theological, pedagogical and social justice issues that will increasingly confront us and to which this experience would apply. □

Satisfaction in Retirement

Kimberly F. Browning and John B. Bond, Jr.

Abstract

Retirement has become a more common occurrence as a result of increased life expectancies, rapid economic and technological changes, and the decreasing importance placed on work. A number of factors have produced a more positive attitude towards and increased satisfaction in retirement. A group of 140 retirees, 62 men and 78 women, participated in a study designed to determine the factors important to satisfaction in retirement. A scale of avowed happiness (MUNSH) was used to measure retirement satisfaction. Aspects of income, health, job deprivation, social activity, voluntary retirement, attitude, and preparation were found to be important to satisfaction in retirement. It is suggested that maintenance of adequate pensions, health care, and social activities as well as a flexible retirement age and increased opportunities for part-time employment will help to create a more satisfying retirement.

Résumé

Le nombre de retraités augmente en raison des espérances de vie plus élevées, de la rapide évolution économique et technologique, et de l'importance moindre accordée au travail. Un certain nombre de facteurs ont engendré une attitude plus positive face à la retraite et permis d'en tirer une plus grande satisfaction. Un groupe de 140 retraités comprenant 62 hommes et 78 femmes a participé à une étude visant à définir les facteurs qui influencent fortement la satisfaction qu'on tire de la retraite. Une échelle d'évaluation du bonheur reconnu (MUNSH) a servi à mesurer cette satisfaction. On a découvert que des facteurs comme le revenu, la santé, la dégradation du travail, la vie sociale, la retraite volontaire, l'attitude et la préparation y jouent un grand rôle. On suggère que le maintien de pensions, de soins de santé et d'activités sociales adéquats ainsi qu'un âge de la retraite flexible et un plus grand nombre de possibilités d'emploi à temps partiel aideront à engendrer une retraite plus satisfaisante.

For a number of reasons, retirement has become a significant aspect in the lives of an increasing number of older persons. One of the more noticeable explanations is the demographic revolution. The elderly (65 years and over) proportion of the Canadian population is gradually increasing and is growing faster than the total population (Havens, 1981; Stone & Fletcher, 1980). An increasing proportion of older workers has led to the establishment of a compulsory retirement age and a trend towards earlier retirement as many older workers are encouraged to leave the labor force. In addition, a longer life expectancy means that greater numbers of people than ever before are spending longer periods of time in retirement.

Retirement also has become a more common occurrence as a reflection of economic changes, employment opportunities, and increasing technological expansion. Periods of economic recession and high rates of unemployment are most likely to affect the older worker. When labor supply exceeds demand and the total cost per worker output increases, older workers are often retired, permitting younger persons to enter the labor force. In addition, it is assumed that rapid technological changes and mass production industries have made it difficult for older workers to maintain performance levels and made obsolete traditional job skills. The lack of appropriate educational skills and job retraining, increasing inability to meet

Kimberly Browning has a BA (Sociology) and an MSc (Family Studies) from the University of Manitoba and is currently a consultant with Western Opinion Research, Winnipeg. John Bond, PhD, is an Associate Professor in the Department of Family Studies, University of Manitoba.

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the physical demands of work, and employer discrimination against the competency of older workers have also helped contribute to the increased numbers of retired persons (Palmore & Maddox, 1977).

A third factor which makes retirement a more viable option is the decreasing importance of work as the "central life interest". Work may no longer be viewed as the primary source of self-identification, personal satisfaction, or important social experiences and relationships. The decreasing importance of these factors has been reflected in a weakening of the Protestant work ethic (Maddox, 1970).

These views are evident in the changing attitude towards retirement. When first established, retirement was viewed as enforced poverty and represented the relinquishment of a major adult role due to the incapacitation of old age. Problems in the meaningful use of leisure time, the absence of a leisure tradition, and the unsatisfactory mesh between work and non-work activities helped to shape these attitudes (Friedmann & Orbach, 1974). However, the gradual emergence of public and private pension programs, medical and health-related services, and changes in labor relations, safety, wages, and hours of work have contributed to more positive attitudes towards retirement. Retirement is now viewed as an earned right, a secure and attractive option, and an opportunity to fulfill one's life.

Retirement has historically been associated with a number of detrimental factors. Earlier studies (e.g., McMahon & Ford, 1955) of satisfaction in retirement were quick to report that various negative factors such as personal and social disorganization, familial disruption, economic misery, organic illness, and even death were due to retirement. Many of these studies, however, reflected existing social myths, negative stereotypes, and cultural biases towards aging and older individuals. More recent studies on satisfaction in retirement have found quite different results. Overall, there is a trend towards increasing optimism towards life among individuals during retirement (Canada, Department of Health & Welfare, 1977; Ciffin & Martin, 1977; Ciffin, Martin & Talbot, 1977). In addition, there seems to be an overwhelming stability in life satisfaction among retirees (Baur & Okun, 1983; Kozma & Stones, 1983).

Factors Related to Satisfaction

A number of studies have focussed specifically on the factors that are important to a satisfying retirement. The present study consisted of 140 retirees, including 62 men and 78 women (Browning, 1984; Browning & Bond, 1986). Participants in the study were retirees from eight organizations including two mailing lists of retired University professors and retired school teachers and administrators. Satisfaction in retirement was measured by The Memorial University of Newfoundland Scale of Happiness (MUNSH) and was considered appropriate in view of its recent development, validation, and cross-validation on elderly Canadians (Kozma & Stones, 1980). All measures consisted of previously validated indices and were tested to meet minimum reliability criteria.

Results indicated that aspects of income, health, social activity, as well as voluntary retirement, attitude towards and preparation for retirement have some relationship to satisfaction in retirement. In addition,

variables of widowhood, job deprivation, and solitary activities were related to dissatisfaction in retirement. It also was found that retired women were more likely to be widowed and in poorer financial condition than were men.

Income and health were found to be closely interrelated and central to satisfaction in retirement. The adequacy of income in retirement can affect diet, clothing, housing, and state of health. Income and health can also affect the level of participation in activities, the opportunities to develop special interests and hobbies, as well as overall satisfaction in retirement. In addition, greater income and better health may permit the individual more flexibility in the timing of retirement as well as easier access to retirement preparation programs.

Higher levels of telephone communication were positively associated with satisfaction in retirement. Although a telephone does not permit face-to-face interaction, it does provide a means of communication with family, friends, neighbors, and social programs. Also, the telephone is a convenient form of communication for the retired, particularly for those who may be financially limited, in poor health, or less actively involved in outside activities. High levels of television viewing, on the other hand, were related to dissatisfaction in retirement. Although an important medium for communication and contact with the outside world, television may not, itself, be intrinsically satisfying to the retired. Television may provide a temporary escape from reality or from the pressures of life, but results suggest that it is not an effective substitute for satisfying social contact and communication among the retired.

The association between attitude towards retirement and satisfaction in retirement suggests that the attitude towards retirement may set the tone for the overall perception and acceptance of retirement. If retirement is entered with a realistic perception and

favorable attitude, the retiree may be better prepared to overcome any problems encountered in retirement. In addition, a positive attitude enables retirees to appreciate the time available in retirement and to pursue interests and activities that are satisfying to them.

Job deprivation was related to dissatisfaction in retirement; retirees who miss aspects of their former work role may have been unable to successfully make the transition from work to retirement. They may feel a strong identification with work in terms of status and prestige and find the loss of work threatens their perception of themselves as useful and productive members of society. Thus, they are dissatisfied with losing a secure and familiar work role and in gaining a new and unfamiliar retirement role.

The combination of being female, widowed, and poor has been identified as a unique social category (Collins, 1978; Dulude, 1978). Women are more likely to be the lone survivors in retirement due to their longer life expectancy, the tendency to marry men older than themselves, and the lower incidence of remarriage in later years (Clark, 1980; Havens, 1981). Retired women are more likely to be in poorer economic condition due to a lower rate of participation in the labor force, less pay for their work, and much lower inclusion in job-related pension plans (Ciffin & Martin, 1977). As a result, women must depend more on government transfer payments (Old Age Security and Guaranteed Income Supplement) and less on private pension contributions.

The results of the present investigation are in agreement with other recent studies reporting income and health as the dominant factors in retirement satisfaction. Retirement attitude and aspects of social activity are less commonly found, but have also been reported as significant factors (Beck, 1982; Canada, Department of Health & Welfare, 1977; Ciffin & Martin, 1977; Ciffin, et al., 1977; MacLean, 1983).

Income and health are closely interrelated and central to satisfaction in retirement.

Discussion and Implications

Since many of the factors important to retirement satisfaction have been well documented, it is appropriate to identify some ways in which satisfaction can be maintained or improved.

Income provisions including expanded private pension plan coverage, improved vesting and portability of pensions, better protection against inflation, and more equitable treatment of women will contribute towards a higher degree of income security in retirement. The standard of living in retirement will undoubtedly affect diet, clothing, and housing in meeting basic needs, opportunities to increase mobility, as well as overall satisfaction in retirement.

The importance of health in retirement suggests the need for proper diagnosis and treatment of illness to forestall debilitating conditions. Health promotion and protection measures including fitness and recreation, proper nutrition, and appropriate use of medications, drugs, and alcohol are related to a healthier retirement. There is also a need to provide accurate information about health in retirement and to eliminate the widespread belief that illness and death are a result of retirement.

For satisfying social activity, retirees should spend less time alone with substitute forms of social contact such as television, and more time in human contact together with family and friends. Social involvement in various educational, religious, cultural, creative, fitness, and other recreational activities may provide meaningful and satisfying use of leisure time in retirement.

A favorable perception and positive attitude towards retirement will encourage individuals to seek out information in preparation for retirement. Preparation for retirement could include pre-retirement counselling or education programs on issues such as available sources of income and financial planning, health and nutrition, meaningful uses of leisure time, alternative employment, housing, legal advice, personal counselling, or other information related to retirement.

The association between job deprivation and dissatisfaction in retirement suggests that retirees miss aspects of their former work role and may be wanting to return to work. One

solution to job deprivation in retirement is part-time employment which would permit retirees to continue in their former work role as well as enjoy the leisure time available in retirement. Part-time employment would provide a sense of usefulness, continuity, and identification with the former work role. Participation in volunteer or community activities also can be rewarding and productive, and create possibilities for a new and different kind of role.

The association between the voluntariness of retirement and satisfaction in retirement suggests a need for increased flexibility in the age at retirement. Greater flexibility in retirement age would permit individuals to choose earlier retirement or to continue working whichever is most satisfying to them.

To conclude, each of these findings helps to create a profile of the individual who is satisfied in retirement. The satisfied retiree is one who is not alone in retirement, but is able to share the retirement experience with a marital partner or close confidant. The satisfied retiree has higher income and is in better health. The retiree who is satisfied does not long to resume aspects of the former work role, or to spend time alone in solitary activities, but rather, prefers interaction with family and friends, and involvement in church and community activities. Satisfied retirees are more likely to have retired on their own terms rather than on aspects over which they have little or no control. Finally, the contented retiree is more likely to have a positive perception of retirement and is likely to be better educated and informed in preparing for retirement. □

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*There is a need to provide accurate information
about health in retirement.*

Activity and Housing Needs of Aging Developmentally Disabled Persons

Eleanor G. Chornoboy and Carol D.H. Harvey

Abstract

A study of the activities of aging developmentally disabled persons was conducted in Manitoba. The relationship between activities and one-to-one training, gender, room location, and type of residence was investigated. A pictorial instrument was used on 29 subjects age 50 and over who were developmentally disabled and a questionnaire was completed by their caregivers. Results showed that subjects who received one-to-one training performed a larger variety of overall activities, that subjects whose rooms were located off the main level spent more time at activities, that women performed more kinds of activities more frequently than men, and that subjects in a senior citizen facility performed activities more frequently than subjects in community residences, independent living situations, foster or familial homes. Implications of the findings for home economists are suggested.

Résumé

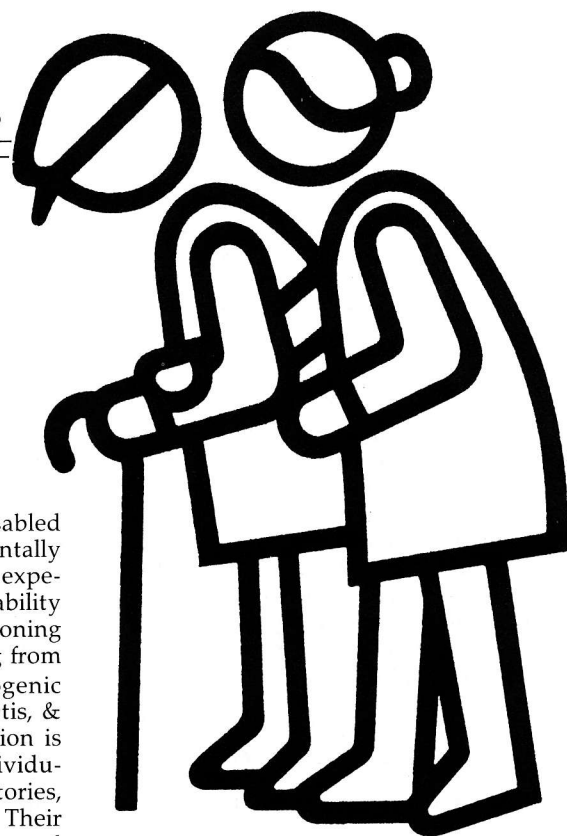
On a réalisé au Manitoba une étude sur les activités des personnes présentant un trouble du développement qui vieillissent. On a examiné les relations entre les activités et la formation personnelle, le genre, l'emplacement de la chambre et le mode d'habitation. On s'est servi d'un instrument graphique sur 29 personnes de 50 ans et plus qui présentent un trouble de développement, et les personnes qui leur fournissent des soins ont répondu à questionnaire. Les résultats ont révélé que les personnes qui ont reçu une formation personnelle se livraient en général à des activités plus variées, que celles dont la chambre ne se trouvait pas à l'étage principal consacraient plus de temps à des activités, que les femmes se livraient à des activités plus variées et plus fréquentes que les hommes, et que les personnes qui habitaient un foyer pour personnes âgées participaient à des activités plus souvent que celles qui habitaient des foyers communautaires ou qui vivaient seules ou dans des foyers d'accueil ou familiaux. L'article précise les conséquences des conclusions pour les conseillers en économie familiale.

Aging developmentally disabled (ADD) persons are mentally retarded persons who experience a host of decrements of ability relative to their former functioning level and life situation, resulting from the normal, abnormal, pathogenic aging process (Puccio, Janicki, Otis, & Rettig, 1983). The ADD population is heterogeneous, consisting of individuals with a variety of personal histories, skills, interests, and aptitudes. Their common denominators are aging and mental deficits.

The size of the ADD population has increased due to improved health care of younger ADD persons (Havens, 1981). Their numbers will continue to increase in the next decade because the number of developmentally disabled infants born during the "baby boom" years was high in proportion to the increase in births (Puccio, et al, 1983).

Developmentally disabled persons have a shorter life expectancy than non-developmentally disabled persons. This is largely due to the high death rate at an early age. With increased age, the death rate declines rapidly (Balakrishnan & Wolf, 1976; Forssman & Akesson, 1970; Richards & Sylvester, 1969; Tarjan, Eyman, & Miller, 1969). Therefore, after the high mortality period of childhood, increased life expectancy occurs. This is due to improved health care, more

Eleanor G. Chornoboy works for the Manitoba Department of Community Services as a Behavioural Specialist. She has a BA (Psychology) and an MSc (Family Studies) from the University of Manitoba. The data reported in the paper come from her master's research, completed in 1985. Carol D.H. Harvey is an associate professor of family studies at the University of Manitoba. She has a BS(HEC) from the University of Idaho, and an MA and a PhD from Washington State University.



nutritious foods, and improved social conditions (Balakrishnan & Wolf, 1976; Dybwad, 1962; Hillman & Libro, 1966; Panitch, 1983; Richards, 1972; Schulman, 1980; Snyder & Woolner, 1974).

Reasons for Study

Increasing numbers of ADD persons has resulted in their heightened visibility in communities. Advocates have begun to put pressure on program planners to provide a reasonable quality of life for ADD people. It is thus necessary to promote and maintain skills, hobbies, and other activities of ADD people. Implementation can be done by considering activity needs, as well as medical and social needs of ADD persons. Empirical evidence of the relationship between housing and activity needs must be collected.

It is important to know if the place of residence has an effect upon activities of ADD persons and if other variables such as one-to-one training, gender, or room location are related to activities.

Instrument and Subjects

Information was collected from ADD persons by showing them sketches of adults performing activities which

Programming is more important than the physical facility in determining activities.

commonly occur at home. The participants in the study were shown 30 sketches of adults and given the opportunity to indicate the following: whether each activity was liked or disliked; whether they performed the activities in their places of residence; and which activity was preferred, given pairs of choices. Caregivers were also given a questionnaire to ascertain accuracy of answers given by participants and to indicate the extent to which the activities were performed.

Information on the frequency of activities performed, the time spent at activities, the existence of one-to-one trainers, the location of the participants' rooms, and the sex of the participants was collected from the caregivers in the respective residences, except in the independent living situations where the participants, the one-to-one trainer, and the case workers provided the data. The information on the number of activities performed was obtained by questioning both the caregivers and the participants. The variables were analyzed in terms of all the activities combined (referred to as overall activities), and then they were separated into active and sedentary activities to determine whether significant differences in activity types existed in the facilities.

There were 29 subjects in this research, all over age 50 and developmentally disabled, who lived in southern Manitoba. Five residential types were used. Nine of the participants (4 males, 5 females) lived in community residences for mentally retarded adults, four males lived independently, nine (7 males, 2 females) were in foster homes, three males lived in familial homes, and four (2 males and 2 females) were in a senior citizen facility.

Findings

Effects of one-to-one training, room location, gender, and type of residence upon activity were examined. Each of those findings is reported below.

The most salient finding was that participants who received one-on-one training performed a larger variety of overall activities than others. The trainer spent 1 hour per week with the participant being involved in infrequently performed or in new activities. This accounts for the increased number of reported activities. When trainers were available, they were expected to actively encourage subjects to partake in domestic activity, physical fitness activity, table games or handiwork for at least 1 hour per week.

The location of the subject's room in the residence also had an effect on activity. Subjects whose rooms were located off the main level were compared with those whose rooms were located in the main level. Contrary to what was expected, it was found that the subjects living on the main level spent less time at overall, sedentary, and active activities than those living off the main level. Possible explanations for the differences may be that subjects living away from the main area of activities make more of an effort to be involved so as to avoid isolation, while persons with rooms on the main area may derive ample satisfaction from their near proximity to the activity by watching others and knowing what is going on without participating.

There was also a difference between men and women in activities. The women performed active activities more frequently than men did, and they performed more kinds of active and overall activities. Many of the activities were domestic, and thus

women may have performed more kinds of the tasks and done them more frequently because more expectations were placed on females to perform domestic tasks than on males. They were socialized to perform traditional sex roles. The males had also been socialized to not perform traditional female duties, as was evidenced by a man saying, "I've never tried that, my mother did that" when shown a sketch of a male ironing clothes.

A final effect was found by residential type upon activity. The participants who lived in the senior citizen facility performed overall and sedentary activities more frequently than ADD participants in any of the other four facility types. The main effect of the facility and the frequency of overall and sedentary activity could be explained by the fact that the reporting was based on all the waking hours and the participants spent all day in the facility. This was in contrast to subjects from other facilities who were employed outside the residence. Since the participants from the senior citizen facility spent their days at home, it was expected that the time spent at activities would also be proportionately high. Contrary to expectations, the difference was limited to the senior citizen facility subjects spending more time at overall activities than those living independently and in foster homes. This significant difference in time spent at activities was not paralleled by a difference in frequency that activities were performed. The absence of that parallel may be due to the fact that the ADD participants did activities often but only briefly. Their activity choices were weighted towards sedentary activities and were witness to minimal staff intervention and minimal encouragement to become involved in additional activity types.

Implications

The information provided by the ADD subjects and their caregivers suggests that programming was more important than the physical facility in determining the activity of ADD persons in their respective residences. This is consistent with literature on ADD persons. The literature reveals that a paramount factor in achieving maximal development in developmentally disabled persons is program design, staff size, and commitment instead of the building structure (Tremonti & Reingruber, 1977); that the staff plays the largest role in supporting behavior by daily programming and interaction (Robinson, Thompson, Emmons & Graff, 1984); and that planning and supervision are required for active activity to occur (Butler & Bjaanes, 1977). Bjaanes and Butler (1974) found that the differences in the way time was spent in various community care facilities were functions of the environmental components including physical, supportive, attitudinal, and behavioral elements.

It is reasonable to suggest that the differences in activity within different facility types appears to be related to the environment relative to the human element. Evidence of increased numbers of activities coinciding with the presence of one-to-one trainers and with expectations placed on participants suggests that human interaction within the facility related to the activity of ADD persons.

In planning for and with ADD persons, ample opportunity and encouragement must be offered individuals to participate in activities they enjoy or wish to try. Home economists can respond by creating training packages for activities that are acceptable to both ADD men and women, such as the *Basic Living Skills* package (1982). Emphasis must also be placed on the design of a facility to make physical access to activity areas barrier free in order for ADD persons to have access to the human element that promotes, encourages, and teaches activities of the ADD individuals' choice, thus facilitating a quality of life chosen and appreciated by the ADD individual. □

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The Home Economist as Cultural Educator

Thelma Barer-Stein

Abstract

The process of discovering the essential elements of the home economics profession is discussed in relation to existing definitions. These essential elements are applied to culture and the role of the home economist as cultural educator.

Résumé

L'article discute du processus de la découverte des éléments essentiels de la profession de conseiller en économie familiale à la lumière des définitions existantes. On applique ces éléments essentiels à la culture et au rôle du conseiller en économie familiale en tant qu'éducateur culturel.

For some time now, home economists have attempted to define their profession of home economics. The great difficulty inherent in any attempt at defining is to capture the essence of the present while giving due recognition to the past as well as opportunity for future change.

Capturing an essence is difficult because to state the essence of any phenomenon is to state those qualities without which, the phenomenon could not be that which it is. These are the qualities that set it apart from all others that may be similar. Further, while some aspects of the phenomenon may shift and develop over time, the essence will likely remain consistent.

With such thoughts in mind, this paper will attempt to show a process of discovering the essential elements of the profession of home economics without which it could not be what it is, and also to show how existing definitions already express these elements without the overt awareness that they represent a description of the essential elements of culture.

Thelma Barer-Stein, BHEc (University of British Columbia); MEd (University of Western Ontario); and PhD (University of Toronto), is a founder and director of Culture Concepts Inc. and author-distributor of *You Eat What You Are: A Study of Ethnic Food Traditions*.

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Two Definitions of Home Economics

Vaines (1982) has documented that the early beginnings of this profession sought to educate women in traditional roles. When one speaks of "traditional roles" it is necessary to add which traditions and in what place, for traditions are not universal and traditional roles vary from one cultural group to another and often between subcultures as well. For example, the traditional role of women in most parts of Canada would relate to those activities centred on the home and the family. Yet these may alter when one gives careful consideration to the differences apparent even in the earlier part of this century to women's traditional roles in farming and fishing areas, as opposed to those in urban settings.

Nor are traditions static. Even traditions gradually shift their emphasis over time in accordance with the needs of daily living. We have been witness to a major shift in the traditional roles, attitudes, and dimensions of women's roles in our own culture.

We tend to think of traditions as unchanged beliefs, customs that are transmitted from one generation to another usually by both verbal and non-verbal means. While even dictionaries perpetuate this notion, only the briefest reflection will prove it to be not entirely accurate. Do you, yourself prepare a family dish *exactly* as your mother did, or raise your own children *precisely* as she did? While we may argue that the essential elements are the same, another factor comes into play in the traditions transmitted: The traditions within any home and family are usually the result of a reconciliation between the husband's and the wife's traditions resulting in a new tradition slightly altered but bearing within it elements of both donations.

Dowdeswell (1984) notes that home economics is seen now as a helping profession for both men and women, as well as a preparation for homemaking and technical vocational training. Here is an example of a shift: Home economics has shifted out of the sole

domain of women and homemaking to recognize that the knowledge and skills inherent in those are applicable to both men and women, and such education is seen as a helpful service for others.

Firebaugh (1981) offers two detailed definitions for consideration. Let us examine the first proposed by the International Federation of Home Economics (1978):

Home Economics is concerned with using, developing and managing human and material resources for the benefit of individuals, families and institutions, and the community now and in the future. This involves the study and research in science and arts, concerned with different aspects of family and its interaction with the physical, economic and social environment.

Here we see that the former explanation as the traditional roles of women in homemaking are now expanded to include *the resources* implicated in the execution of such roles, and the results and *implications on others* beginning within the home and family. The other parts of the definition state *what kind of resources* and *what type of studies* are involved to achieve these ends and satisfy these concerns. By aligning the above details, we can see clearly that the essence from which they each emanate is rooted in home and family.

The second definition offered by Firebaugh (1981) is mission rather than definition, that is it seeks to express the purpose and the means of achieving such purpose rather than being concerned with the what of home economics. Nonetheless there is value in examining Brown and Paolucci's (1978) statement:

The mission of home economics is to enable families, both as individual units and generally as a social institution, to build and maintain systems of action which lead to (1) to maturing in individual self-formation and (2) to enlightened cooperative participation in the critique and formulation of social goals and the means for accomplishing them.

Here we see that the core of the mission is its concern for families and the individuals within them to the end

of "building and maintaining systems of action" (education, laws and resources) to the attainment of "mature" and "enlightened participation" in achieving "social goals". While the expression of the mission's core concern is clear enough, the rest of the statement is suitably euphemistic as to be able to encompass almost any meaning. For example, 'mature' has such varied connotations as to be almost useless for any practical application. How shall such maturity be developed, recognized, or evaluated? And what may be considered mature in one culture may not necessarily be so in another. Other terms such as social goals are vague enough to encompass the societal goals of anything from an oppressive dictatorship to enlightened socialism.

If the expressed purpose of home economics as both a discipline and a profession is centred in the family and the individuals that compose a family in any given culture, then it seems apparent that home economics must have as its stated mission (purpose):

- an in-depth study of the *history*, traditions, and development of the family in any given culture;
- an in-depth study of the *beliefs and values*, attitudes, and customs of families in any given culture, both in the past and to indicate the shift and direction of change over time;
- an examination of the *contextual factors* — environment both natural and man-made that impinge on and affect families in any culture and in differing areas within that culture;
- the important *laws, disciplines, symbols, and rituals* that regulate and bring order to families in any given culture;
- a recognition of the *essential resources* required to secure and perpetuate the strong and healthy development of families and the individuals within them; and
- the study of how the traditions of a culture have been *transmitted and selectively perpetuated*, and how this process may be refined and developed further to the goal of optimum individual and familial development.

A summary statement to the above list might state that home economics as a discipline of study and a profession is centred on the family in any culture with the purpose of recognizing the traditions from which it has come, optimizing resources and conditions

for its maintenance and survival to ensure the optimum personal development of each individual within it.

Yet one nagging notion remains. If family traditions are maintained and transmitted from one generation to another, why has a discipline and a profession developed which sees as its own *raison d'être* this very task? In other words, for what reason has it been deemed necessary to encapsulate into formal educational and professional strictures that which was for generations maintained without home economics per se?

A negative answer to this might be the perceived need for power and control of the family to be delegated to an institution. A positive answer to this notion might be the perceived need to institutionalize and perpetuate knowledge and skills in order to gain prominent recognition for their importance in the maintenance and preservation of a society. Other answers, both negative and positive await further reflections and views from differing vantage points.

Home economics is centred on the family.

But the fact remains, home economics is a discipline for study and a practicing profession that centres its concerns and thus its study and research on the history, perceived needs and resources, and the optimal development of family and home as well as their future development and well-being.

Towards Understanding Culture

Aspects of culture, which can be most briefly thought of as ways of human living, are the basis of many disciplines and professions. What is important to underline, is that each studies but a small aspect of the whole.

Psychologists study the human mind and personal characteristics, and attempt to explain human relationships and individuals' behavior. Sociologists concern themselves with the study of human society as a whole, particularly cultural and environmental factors. Social workers are trained professionals whose work and study is directed towards the betterment of

communal social conditions and of course the individuals within those communities. Anthropologists study the science of man's cultural development and a dictionary even defines such study as "the science of man and his works." Obviously, the broad range of these disciplines and professions together serve to augment our knowledge of human living, yet because of their need to fragment human living in order to study it, we often overlook the need and the value in a study that coalesces the totality of human living into a whole.

This is not to negate the importance and even the necessity of breaking into manageable chunks a topic that would be unwieldy to study and research in its totality. Human living is too complex. Yet at some point, there must be some discipline that seeks to bring together the most important factors of each discipline concerning itself with human living, in order to make some assessment of what we have done and where we are going with that human living. Even more practically, what can be learned from similar situations in differing environments, how are different resources used, and in what ways and directions is human living changing?

In our times, more than any other period in the history of humankind, has the totality of human living on this globe been seen to be so interdependent, so vulnerable, and fragile. The need for mutual collaboration and the need for mutual understanding was never more urgent. These current needs have spotlighted the need for global human learning and vision.

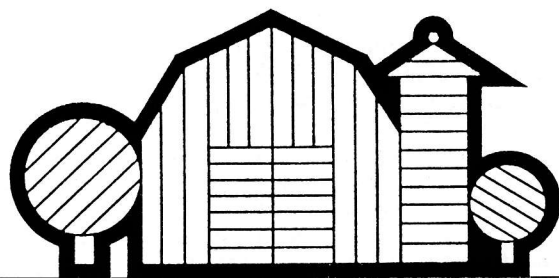
In my own study and research, I have come to understand 'culture' as "being expressive of the many unique ways in which individuals group together, compose, understand and live their daily lives and in so doing transmit a way of daily living to others" (Barer-Stein, 1985). The expressed concerns and mission of home economics seem to articulate what each cultural group represents — unique way of daily living that would not be possible without the transmission of shared knowledge and skills based on available resources. The study of each cultural daily living is a contribution to our global understanding of the totality of human culture.

(Continued on page 28)

Stress in the Farm Family

Implications for the Rural Human Service Worker

Elizabeth Gordon



Abstract

In an attempt to dispel the myth that agricultural life is free from problems, stress factors inherent in the institution of the farm family are examined. The current economic crisis in agriculture is considered, with emphasis on those stressors that impact on farm family relationships. Recommendations are proposed for the human service worker in rural communities with regard to differential social problems for farm families than for urban families.

Résumé

Dans une tentative de détruire le mythe voulant que la vie sur la ferme soit insouciant, on examine les facteurs de stress inhérents à la vie familiale sur la ferme. La crise économique qui frappe actuellement l'agriculture fait l'objet d'un examen qui porte principalement sur les causes de stress qui touchent les relations familiales sur la ferme. Le travailleur social en milieu rural y trouvera des commentaires quant aux différences entre les problèmes sociaux des familles en milieu agricole et ceux des familles urbaines.

Elizabeth Gordon received a BSHEC from the University of Saskatchewan in 1986. She is currently enrolled in a Master's Program in Continuing Education at the University of Saskatchewan.

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"From Hollywood to Harrow-smith, we've been told of the glories of the 'family farm'. The setting is peaceful, idyllic and romantic" (Saskatchewan Research Action Education Centre, 1981, p. 33). Historical myths imply that farm life is free and easy, and that those living in the country have little stress (Jensen, 1982). On the contrary, in a study conducted by Women of Unifarm in Alberta (Jevne, 1979), 80 percent of the respondents reported suffering more stress than they did 10 years ago, and according to the United States National Institute of Occupational Safety and Health, owning and operating a farm ranks in the upper 10 percent of high stress occupations (Keown, 1981). "Today, agricultural living has become a pressure-laden, complicated business, a fast-paced endeavour beset with economic pitfalls, tough decisions to make, multiple relationships to maintain, as well as long hours of tense work with high risks of failure" (Hollister, 1985, p. 1).

What is stress? Ireland (1983) states that stress is simply a feeling or state of mind that tells one something is out of kilter. Some stress is good. We need it to work, to play, to live: it is necessary for survival. When our ancestors were confronted, their defense systems went into operation and they were able to fight foes (Schaevitz, 1984). However, modern farmers must "fight" the market forces that keep the prices of products below the costs of production; they must "fight" inflation, government policies, and transportation difficulties — forces which are

beyond their control. If this state of tension is maintained over a period of time, the body rebels and symptoms develop (Ireland, 1983). Stress, when prolonged, can have a wide variety of physical side-effects, but the psychological symptoms can be just as disabling. If the quality of life is to be protected and the goals of the farm family are to be achieved, we must recognize the stress factors which endanger that lifestyle (Jensen, 1982). This paper will emphasize four of those stressors: the fusion of familial and economic relationships; intergenerational conflicts; the economic climate; and agricultural health and safety.

Fusion of Familial and Economic Relationships

While the modern farm family more closely resembles the non-farm family than it did a generation ago, there are some characteristics that tend to differentiate the farm family from the nonfarm family. For this paper, as an adaptation of Rosenblatt and Anderson's (1981) definition, the farm family will be any unit of individuals who earn the largest share of their net income from raising crops or livestock. In the farm family, there is no separation of economic and social roles: marriage partners are business partners and their children perform chores that in another business would be performed by hired employees. Ireland (1983) states that the date of the wedding of a farm couple is determined by activities on the farm and that their divorce not only dissolves the marriage, but often the business as

well. Thus, a farm family with a high level of internal tension is less likely to break up than an urban family with similar tensions. Although divorce rates are rising in farm families, they are still lower than urban rates (Rosenblatt & Anderson, 1981).

The farm home is unique in that it is a place of residence as well as a centre for agricultural production. Work life and home life occur in the same or adjacent spaces; there can be either too much or not enough togetherness (Rosenblatt, Nevaldine, & Titus, 1978). During seasons of heavy work, family members may have little contact, and the contact they do have may be unrewarding because of fatigue, tension, and irritability. During the off-season, there is a risk of too much togetherness. Privacy may be insufficient and minor irritations can turn into major problems (Rosenblatt & Anderson, 1981).

Intergenerational Conflicts

The fusion of social and economic relationships intrudes in an important way into parent-child interaction. To enter the agricultural occupation, the younger generation is trained by the older and this "apprenticeship" begins very early in life (Kohl, 1976). Norma Taylor (1976) reports that each of her children started steering the grain truck around the field when they were 5 years old. The very real needs for labor make it necessary for children to do whatever they are able to do or whatever they are directed to do. Their training begins with a total disregard for the value of their time or personal interests (Devereux, 1977).

Relationships between supervisor and supervised have inherent sources of tension, but in a multigenerational operation there are sources of stress that would not exist if family members were working separately or if they were non-relatives on the same enterprise (Rosenblatt & Anderson, 1981). The issues of authority and control are the most obvious sources of tension in this type of arrangement. Our culture values independence and

autonomy, yet the intergenerational method of transfer demands that the younger adults remain under the authority of the parents until the latter are ready to retire (Bennett, 1982).

Those who enter farming most often do so with the financial aid of parents. There may be a real or perceived obligation when the older generation holds so much financial power over the younger. If the younger adults fail to repay the debt, the older may feel annoyed by what is perceived as ingratitude. Or the younger generation may attempt to repay the debt by doing favors for the parents that they do not want done (Rosenblatt & Anderson, 1981). When the younger generation desires a lifestyle differing from that of the parents, conflict may be inevitable (Bennett, 1982).

Estate planning may be one of the most stressful situations facing farm families today. Most parents desire to treat all of their children equally, but at the same time they want to preserve the enterprise as a unit. Non-farm children are one of the most difficult aspects of estate planning because most of the assets are tied up in land and machinery (Delahey, 1985).

Retirement is a matter of intergenerational relationships and may be more stressful for farm families than for non-farm families. The land itself may be inseparable from the identity, and the transfer of resources involves giving up the activity that defines them as social persons (Kohl, 1976).

Economic Climate

In the last 4 years the economic plight of the farm family has become severe. Dramatic increases in farm operating costs and inadequate increases in commodity prices mean that farmers are living on less, paying more, and borrowing more in an effort to stay on the farm. Ross (1985) reports that real income has dropped 36 percent and expenses for agricultural inputs have increased almost 200 percent since 1971. Grain prices are low because they are tied to a monopolized international market; they reflect

external factors of supply and demand rather than internal costs of production. Whereas most people in the workforce can count on rising incomes and other businesses can set prices so as to cover operating costs, the farmer has no bargaining power in the market structure (Taylor, 1976).

Variability in income and cash flow can have a wide impact on farm relationships. Income is not received on a regular basis, in terms of either time or quantity. "While our overall economy revolves around end-of-the-month specials, spring savings and credit cards based on average annual salaries, farm income revolves around fluctuating initial and final payments" (Devereux, 1977, p. 16). Often there is no spare cash, but when grain or livestock is sold, it comes in large amounts. Family disputes can arise over how the money should be spent; some members prefer to save for low cash periods while others may spend it all as soon as they get it (Rosenblatt & Anderson, 1981). In the Albertan study, farm finances were the leading producer of stress and they were also part of many other stress-producing situations (Jevne, 1979).

Agricultural Health and Safety

Farms have become hazardous places to live. Powerful machinery has produced an accidental death rate on Canadian farms which is 20 percent higher than the national average (Devereux, 1977). Farmers handle toxic chemicals, they breathe air contaminated with dusts, pollens, and molds. They are exposed to animals and plants, both domestic and wild. Moreover, farm work is performed under time-pressed and anxiety-laden conditions (Canada Center for Occupational Health and Safety, 1985).

Evidence is mounting to support the relationship between the lack of recognition of the realities of rural life and a host of psychosomatic illnesses which have gone undiagnosed (Devereux, 1977). Positive attitudes must be encouraged early in life if rural ways are to be valued. Schoolchildren are

*The issues of authority and control
are obvious sources of tension.*

conditioned to devalue rural life; textbooks imply that the farm is not a place to live, they go there to visit Grandpa (Taylor, 1976). The impression given by the mass media is that farm life has remained unchanged since the turn of the century. The advertising industry portrays farmers as rather simple folk living a leisurely, pastoral life (Status of Rural Women, 1980). Totally inaccurate pictures are drawn about net returns at the farm gate (Jensen, 1982).

Farms have become hazardous places to live.

Implications for the Rural Human Service Worker

"A major challenge for rural families today . . . is how they will develop and manage their resources and relationships in times of uncertainty about the future" (Nicholls, 1981, p. 4). A large number of rural people are becoming overstressed, nervous and depressed by the increased pressures of daily living (Hollister, 1985).

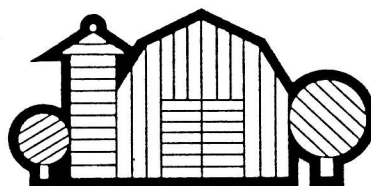
In order to intervene effectively, the human service worker in a rural area must become knowledgeable about the agricultural way of life, the unique characteristics of the farm family, and the economic and social context in which the farm family functions. Rural relationships generate rural social problems and they differ from those in urban centres (Collier, 1984).

Rural people need to be made aware that stress can cause psychological problems and relationship breakdowns. They need help to cope with that stress, to stay emotionally healthy, and to enrich the loving bonds of farm family life (Hollister, 1985).

"The task would be much easier if the myth of the tranquillity and peacefulness of rural life were laid to rest" (Jensen, 1982, p. 12). □

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(Continued from page 25)

Home Economist as Cultural Educator

Early beginnings of this profession sought to educate women in traditional roles of home and family and while later development of the profession has included both men and women in the education of the skills and knowledge that emanate from traditional roles of care and nurturing of home and family, *such education must be seen as cultural education*.

While other disciplines of study and practicing professionals study aspects of human living, none concern themselves with the transmission of such skills and knowledge with a goal of optimizing human living.

Home economics stands uniquely apart from every other discipline in centring itself on the home and family, and in researching and perpetuating through courses of study and professional practice the history and thus the traditions as well as the current innovations and future trends of human living within any culture. Since research and study alone enlighten only the researcher and student, the communication and thus the transmission of that knowledge and those many skills must be considered the essential purpose of the discipline and practice of home economics.

Without its centred concern on home and family, home economics could not be what it is. And it is within the research and the study of the meaning and implications of home and family on the society as a whole and the entirety of global living, and the communication of this to others that the home economist retains the essential quality and characteristic of cultural educator. □

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Nutrient Intake of the Canadian Women's Olympic Field Hockey Team (1984)

A. Elizabeth Ready

Abstract

The purpose of this study was to evaluate the nutrient intake of the Canadian Women's Olympic Field Hockey Team. Nineteen athletes (*M* age = 23.2 years) training for the Olympic squad were assessed in June 1983. A 3-day dietary record (2 weekdays and 1 weekend day) was used to evaluate intake. Each player was also interviewed by a nutritionist to ensure that the information recorded was accurate. A computer program (Action B.C.) was used to analyze the dietary record. Maximal oxygen uptake averaged 51.0 mL/kg/min and body fat averaged 18.5%. Mean energy intake was 1966.6 kcal; 42.0% as carbohydrate, 38.7% as fat, and 15.3% as protein. Several of the players were below the Recommended Nutrient Intake (RNI) for vitamin A, vitamin B₆, vitamin B₁₂, folate, and iron. It is recommended that the players receive dietary counselling in order to ensure that the requirements for an adequate diet and optimal performance are met.

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Résumé

Cette étude visait à évaluer l'absorption d'éléments nutritifs des membres de l'équipe olympique féminine canadienne de hockey sur gazon. Les 19 athlètes (âge *M*: 23,2 ans) à l'entraînement avec l'équipe olympique ont fait l'objet d'une évaluation, en juin 1983. On s'est servi d'une fiche alimentaire portant sur trois jours (deux jours de semaine et un de fin de semaine) dans ce but. Chaque joueuse a en outre rencontré un diététicien pour s'assurer de l'exactitude des renseignements enregistrés, et un programme informatique (Action B.C.) a servi à analyser la fiche. En moyenne, l'absorption d'oxygène maximale était de 51,0 mL/kg/min., et la proportion de tissus adipeux était de 18,5%. La ration moyenne d'énergie était de 1 966,6 kcal dont 42,0% de glucides, 38,7% de gras et 15,3% de protéines. Plusieurs joueuses étaient en deçà de la ration de nutriment recommandée pour ce qui est de la vitamine A, de la vitamine B₆, du folate et du fer. Il est recommandé de conseiller les joueuses en matière de diététique afin de s'assurer que leur régime alimentaire est adéquat et permet de fournir une performance optimale.

Nutrition is an essential component of health, and is therefore extremely important to high-calibre athletes. It has been suggested that the requirements for carbohydrate (Costill & Miller, 1980) and iron (Clement & Sawchuk, 1984) may not be met by a conventional diet during heavy training. Although the vitamin and mineral requirements of athletes have also received consideration, there is little evidence that amounts above those normally supplied in the diet are necessary. Dietary surveys of athletes suggest that a wide variety of dietary behavior is compatible with sport performance, and that individual taste and attitude are the major determinants of behavior (Brotherhood, 1984).

A. Elizabeth Ready is an associate professor in the Faculty of Physical Education and Recreation Studies at the University of Manitoba. She received her BA(Hons.) and MA from the University of Western Ontario, and her PhD from the University of Alberta.

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Few studies have examined nutrient intake in elite athletes. Although competitors generally have high-energy intakes (Brotherhood, 1984), many studies have reported surprisingly low values for female athletes (Clement & Asmundson, 1982; Dale & Goldberg, 1982; Short & Short, 1983). Suboptimal intake of thiamin, calcium (Steel, 1970), vitamin A (Campbell & MacFayden, 1984), iron, potassium, and vitamin C (Short & Short, 1983) have also been reported for athletes. Inadequate iron intake is especially prevalent among female competitors (Clement & Asmundson, 1982).

The purpose of this study was to assess the nutrient intake of the Canadian Women's Olympic Field Hockey Team. Average daily energy intake and nutrient intake were determined and compared to the recommended values for Canadians (Bureau of Nutritional Sciences, 1983). The percentage contribution of carbohydrate, protein and fat, as well as the distribution of intakes throughout the day were also examined.

Methods

Subjects. Nineteen athletes training for the 1984 Olympic squad were assessed in June 1983. Fifteen of the players were subsequently selected to the team. Each athlete signed an informed consent form prior to participating in the program.

Assessment of nutrient intake. A 3-day dietary record was used to assess dietary status. Prior to meeting the nutritionist, players were instructed by letter to record food intake for 2 weekdays and 1 weekend day. They were also asked to record the time of day and the order in which foods were consumed, as well as portion sizes and method of preparation. Information recorded on a worksheet by each player was subsequently transcribed to a computer form during an interview with the nutritionist. The nutritionist also asked questions and used food models to ensure that the information was accurate. Although use of supplements was discussed at this time, the information was not recorded or included in the analysis of nutrient intake.

The 3-day dietary record was analyzed using a computer program developed by Action B.C. (Thompson, 1983). Each athlete and the coaches received a personalized printout describing dietary composition and nutrient intake. The nutritionist interpreted each computer printout and summarized the findings in a letter to each player.

Assessment of functional capacity. A complete battery of physiological tests was also administered to each athlete (Ready & van der Merwe, 1986). Percent body fat was calculated from body density. A progressive intensity treadmill test to exhaustion, with velocity constant at 9.7 km/hr and 2.5% increments in elevation at 3-minute intervals, was used to determine maximal oxygen uptake $\dot{V}O_2$ max).

Data analysis. The average 3-day energy and nutrient intakes were recorded for each subject. Means and standard error of the means are reported as use of the Shapiro Wilk W-statistic indicated that the majority of values for energy and nutrient intake were normally distributed. The percentage of players who met the recommended intake for each nutrient was also determined, as was the average dietary intake from the major nutrients, average daily intake from each food group and from empty calories, and time of day of intake.

Results and Discussion

The physical characteristics of the athletes are reported in Table 1. Testing took place in June 1983, approximately 2 months following the team's second place World Cup finish, in Kuala Lumpur. The team was in a period of relatively light training at the time of the assessment. Although the players' fitness levels compared favorably with other elite players (Withers & Roberts, 1981; Zeldis, Morganroth, & Rubler, 1978) at this time, they improved considerably during the year prior to the Olympics. Percent body fat and $\dot{V}O_2$ max averaged 15.7 and 59.3 mL/kg/min, respectively, for the squad ($N = 16$) in June 1984 (Ready & van der Merwe, 1986).

The limitations of dietary surveys have been discussed in previous studies. Short and Short (1983) expressed concern regarding the dietary recall/record method and the nutrient comparison standard. Several studies have employed a 3-day record (Campbell & MacFayden, 1984; Short & Short, 1983) which has been found to compare favorably with biochemical data (Owen & Kram, 1969).

Although comparison of nutrient intake to the Recommended Nutrient Intakes (RNIs) for Canadians is useful, it provides only a relative index of adequacy and does not represent individual nutrient requirements. The RNI is sufficiently high to meet the requirements of almost all individuals, and therefore exceeds the requirements for most. Although an intake below the RNI does not indicate that an individual has been inadequately nourished, the lower the intake in relation to the RNI, the greater the risk that the individual has not met his or her requirement (Bureau of Nutritional Sciences, 1983). The relative risk of inadequate intake may be slightly greater for athletes, who may have higher requirements during periods of intense training.

Similarly, only the average energy requirement can be specified for a group of individuals. This requirement varies among individuals of comparable body size, physical activity, dietary pattern, and of the same age and sex (Bureau of Nutritional Sciences, 1983). Approximately one-half of individuals will have requirements above the average, and one-half below it.

Energy intake. The mean energy intake of the athletes was 1966.6 kcal/day. Despite their high-energy output, the average intake of the players was below the average requirement. Eleven of the 19 athletes consumed less than the average requirement of 2100 kcal/day. This figure does not necessarily indicate inadequate intake as the requirement is merely an average. There is evidence, however, that several athletes may have been in a state of negative energy balance, as the mean percent body fat decreased from

18.5 to 15.7 during the subsequent year. Whether this was due to increased intensity of training prior to the Olympics, or inadequate energy intake, cannot be determined from the present study.

Several studies have reported daily intakes between 1765 kcal and 2200 kcal for female athletes (Clement & Asmundson, 1982; Dale & Goldberg, 1982). Brotherhood (1984) suggested that such low values may be artifacts due to the under-reporting of food intake. Conversely, other studies have reported average daily intakes in excess of 2500 kcal for female swimmers (Campbell & MacFayden, 1984; Short & Short, 1983) and basketball players (Short & Short, 1983). As considerable effort was made to ensure that player reports were accurate in the current study, it is probable that the energy intake of many was too low for optimal physical performance. It is possible that intake was low as a result of the relatively light training cycle at the time of assessment. A study of champion male rowers reported a 23% decrease in intake following transition from a period of intensive training to an out-of-training period (de Wijn, Leusink, & Post, 1979). Brotherhood (1984) suggested that the high incidence of amenorrhea among sportswomen may be related to inadequate energy intake. Unfortunately there are no such records for the Canadian team.

The average dietary intake of kilocalories contributed by protein, fat, and carbohydrate was 15%, 39%, and 42% respectively, for the hockey players (Table 2). According to the Nutrition Recommendations for Canadians (Bureau of Nutritional Sciences, 1980), this represents a relatively low carbohydrate and high-fat intake. Only five athletes met the recommendation that intake from carbohydrate account for 50% or more of total kilocalories. Eight players consumed less than 40% of their total kilocalories as carbohydrate. This is especially significant in view of the high-energy expenditure of the athletes. Intake from fat was in excess of 35% of total kilocalories for 12 of the 19 players. The athletes' average protein intake of 1.3 g/kg/day was above the recommended value (Bureau of Nutritional Sciences, 1983).

Energy contribution from the major nutrients has been found to vary widely among athletes. Short and

Table 1. Physical Characteristics of 19 Subjects ($M \pm SE_M$)

Age (yr)	Height (cm)	Weight (kg)	Body fat (%)	$\dot{V}O_2$ max (mL/kg/min)
23.2 \pm 2.8	162.5 \pm 5.6	58.5 \pm 4.8	18.5 \pm 5.2	51.0 \pm 7.0

Table 2. Average Dietary Intake ($M \pm SE_M$) from the Major Nutrients ($N = 19$)

Nutrient	Intake (%)	Recommended (%) ^a
Carbohydrate	42.0 \pm 2.1	50
Fat	38.7 \pm 1.5	35
Protein	15.3 \pm 0.5	15

^aBureau of Nutritional Sciences (1980).

Short (1983) reported percentage contributions from carbohydrate and fat ranging from 39% to 53% and from 31% to 43% respectively, for several groups of female athletes. An average intake of 49% carbohydrate, 35% fat, and 15% protein was reported for female competitive and synchronized swimmers, and controls (Smith, Mendez, Druckenmiller, & Kris-Etherton, 1982). Several studies have reported slightly higher protein intakes for female athletes than were found in the present investigation (Short & Short, 1983; Steel, 1970). Brotherhood (1984) noted that protein intake tended to be lowest among endurance athletes, yet usually exceeded 1.5 g/kg/day.

A large proportion of the daily energy intake was in the form of empty kilocalories (Table 3). This is energy that does not provide much nutrient value and would be best replaced by more nutritious foods. This may be especially important in view of the relatively low total energy intake and inadequate nutrient intake of the players.

Average daily intake from the four food groups was within the recommended number of servings (Table 4). Nevertheless, several athletes reported less than adequate intake of many nutrients (cf. Table 6). This suggests that the athletes, who have a high daily energy requirement, should make careful selections from each food group.

Approximately 50% of the athlete's intake was consumed during the evening (Table 5). A recent study of young competitive swimmers also reported that more than 40% of the daily intake was provided by dinner and the evening snack, and recommended that the intake of kilocalories be redistributed to achieve a better balance between intake and energy expenditure in morning and afternoon training sessions (Campbell & MacFayden, 1984).

Table 3. Average Daily Intake ($M \pm SE_M$) of Empty Kilocalories ($N = 19$)

Empty kilocalories	Intake (kcal)
Fats and Oils	271.2 \pm 35.1
Sweets and Desserts	247.2 \pm 33.9
Alcohol	56.4 \pm 15.2
Total	574.7 \pm 68.2

Table 4. Average Daily Food Group Intake ($M \pm SE_M$), $N = 19$

Food group	Number of servings	Recommended servings ^a
Breads and cereals	4.5 \pm 0.3	3-5
Milk products	2.3 \pm 0.2	2
Meat and alternates	2.0 \pm 0.2	2
Fruits and vegetables	4.5 \pm 0.5	4-5

^aCanada's Food Guide.

Table 5. Kilocalories Consumed During Various Time Periods ($M \pm SE_M$), $N = 19$

Time of day	Intake (%)	Recommended (%)
5 a.m.-11 a.m.	21.2 \pm 1.5	25-33
11 a.m.-5 p.m.	32.0 \pm 2.3	25-33
5 p.m.-5 a.m.	47.7 \pm 2.2	25-33

^aAction B.C. Analysis.

Nutrient intake. The mean intake of nutrients is compared to the RNIs for Canadians in Table 6. The distribution of all variables except folate, vitamin C, and vitamin A was found to be normal

when examined using the W-statistic. The group medians for the above nutrients were 166.4 μ g, 120.2 mg, and 707.7 RE, respectively. Average intake of vitamin B₁₂, pantothenic acid, iron, and fibre were slightly below the recommended amounts. A large number of players did not meet the recommended intake of vitamin A, vitamin B₆, folate, vitamin B₁₂ or iron (Table 7). Although limited conclusions can be made from these figures, as the RNIs do not represent individual requirements, the greater the discrepancy between the RNI and intake, the greater the risk of inadequate intake. The relative risk may be greater for elite athletes, who may have higher

Table 7. Number of Players Who Met the Recommended Nutrient Intakes for Canadians ($N = 19$)

Energy and nutrients	<i>n</i>
Energy (kcal)	11 ^a
Protein (g)	19
Vitamin A (RE)	7
Vitamin C (mg)	19
Thiamin (mg)	19 ^b
Riboflavin (mg)	19 ^b
Niacin (NE)	19 ^b
Vitamin B ₆ (mg)	9
Folate (μ g)	10
Vitamin B ₁₂ (μ g)	8
Calcium (mg)	14
Phosphorus (mg)	19
Iron (mg)	5

^aIndicates number who met the average requirement.

^bCalculated relative to individual energy intake.

Table 6. Three-Day Mean Intake of Kilocalories and Nutrients ($M \pm SE_M$) Compared to the Recommended Nutrient Intake (RNI) for Canadians ($N = 19$)

Energy and nutrients	Intake	RNI ^a
Energy (kcal)	1966.6 \pm 128.0	2100.0 ^b
Protein (g)	74.0 \pm 4.4	41.0
Vitamin A (RE)	1041.0 \pm 316.4	800.0
Vitamin C (mg)	147.1 \pm 23.6	45.0
Thiamin (mg)	1.2 \pm 0.1	0.4 mg/1000 kcal
Riboflavin (mg)	1.7 \pm 0.2	0.5 mg/1000 kcal
Niacin (NE)	27.6 \pm 1.9	7.2 NE/1000 kcal
Vitamin B ₆ (mg)	1.6 \pm 0.2	1.5 ^c
Folate (μ g)	187.7 \pm 18.5	165.0
Vitamin B ₁₂ (μ g)	1.8 \pm 0.2	2.0
Pantothenic acid (mg)	4.3 \pm 0.3	5.0-7.0 mg/day
Calcium (mg)	881.1 \pm 64.4	700.0
Phosphorus (mg)	1252.3 \pm 67.5	700.0
Iron (mg)	11.0 \pm 0.8	14.0
Sodium (g)	2.1 \pm 0.2	2.0-8.0 ^c
Fibre (g)	3.1 \pm 0.4	5.0-8.0 ^c

^aBureau of Nutritional Sciences (1983).

^bAverage requirement.

^cSuggested value (Action B.C. Analysis).

requirements than the rest of the population.

Due to their involvement in energy metabolism, adequate intake of the B-vitamins is thought to be essential for optimal physical performance (Brotherhood, 1984). Suboptimal thiamin intake has been previously reported in athletes (Steel, 1970) and could have a detrimental effect on performance if severe (Mayer & Bullen, 1960). The athletes in the present study all met the recommended intakes for thiamin, riboflavin, and niacin; however, less than half of the players met the RNIs for vitamin B₆ and vitamin B₁₂. Steel (1970) recommended that athletes ensure sufficient intake of B-vitamins through well-balanced meals and from supplements.

Females engaged in intense physical activity may be particularly susceptible to iron deficiency anemia due to the added iron cost associated with physical training (Wirth, Lohman, Avaltane, Shire, & Boileau, 1978). Iron depletion, even without severe anemia may affect oxidative metabolism and the clearance of lactate, seriously limiting endurance performance (Schoene et al., 1983). The average iron intake of the Canadian players was below the recommended level of 14 mg/day. Six players had intakes of less than 10 mg. These findings are not surprising when previous studies of female athletes are considered. Clement and Asmundson (1982) reported suboptimal intakes for 90% of female runners studied. Less than adequate intakes have also been reported for female field hockey players (Diehl, Lohman, Smith, & Kertzer, 1982).

Other factors associated with iron depletion in athletes include heavy sweating and decreased absorption (Ehn, Carlmark, & Hoglund, 1980). Researchers have suggested that diets rich in fat may inhibit iron absorption, and recommended addition of fructose to promote absorption (de Wijn, de Jongste, Mosterd, & Willebrand, 1971). The average intake of fat by the Canadian athletes, although greater than recommended, was not extreme. Following 2 weeks of iron therapy, Schoene et al. (1983) reported lower lactate levels after exhaustive exercise in minimally iron-deficient women. Increased intake of iron, as part of the diet or as a dietary supplement, may be desirable in order to ensure that several of the Canadian players are capable of optimal performance.

Less than adequate intake of vitamin A and fibre may be additional health concerns for several of the athletes. A large percentage of the competitive swimmers studied by Campbell and MacFayden (1984) also reported suboptimal intake of vitamin A. Education and counselling of the athletes should help to ensure that appropriate dietary practices are followed.

Summary

The nutritional status of the Canadian Women's Field Hockey Team was assessed 1 year prior to the 1984 Olympic Games. Based on the results of a 3-day dietary record, it was concluded that the average daily energy intake was below the average recommendation. The percentage intake of carbohydrate was also low, while the intake of fat was slightly greater than recommended. Several of the players were below the RNIs for vitamin A, vitamin B₆, vitamin B₁₂, folate, and iron. Average fibre intake was also less than the suggested value.

In order to ensure that the requirements for an adequate diet and optimal performance are met in the future, the following recommendations are made:

- That the players receive regular dietary evaluation, counselling, and education.
- That body composition and weight be routinely evaluated to ensure that energy intake is sufficient and the player is not inadvertently in a state of negative energy balance.
- That foods rich in vitamin A, vitamin B₆, vitamin B₁₂, folate, iron, and fibre (fruits, vegetables, milk, liver, kidney, meat, and fish) be encouraged, and intake of empty calories discouraged.
- That a dietitian or a physician be regularly consulted in order to recommend iron and other supplements if necessary.

Although these recommendations are made following the evaluation of only one team, they may be applicable to other elite female athletes in field hockey and other team sports. □

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Clothing Values of Filipino Women Residing in Canada

S.S. Senga, S.A. Brown, and C.A. Gonzales

Abstract

This study measures the clothing values of Filipino women residing in Winnipeg, to determine the relative importance of eight clothing values and the differences in values with demographic and socio-economic variables. The rank-ordered values and the relationships among variables are compared with earlier studies involving Filipinos and other ethnic groups to assess the relative importance of culture as an influence on clothing values.

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Résumé

Cette étude porte sur les valeurs que les Philippines habitant Winnipeg accordent à l'habillement afin de déterminer l'importance relative de huit valeurs dans ce domaine, ainsi que la variation de ces valeurs en fonction des variables démographiques et socio-économiques. On compare les valeurs classées par ordre et les relations entre les variables à celles tirées d'études antérieures portant sur les Philippines et d'autres groupes ethniques afin d'évaluer l'influence relative qu'exerce la culture sur les valeurs rattachées à l'habillement.

Values have long been a research focus in various fields in the social sciences. Spranger (1928) was the first to suggest that people could be classified into distinct ideal types according to their dominant value orientation. He identified six types: theoretic, economic, aesthetic, social, political, and religious and argued that these shape an individual's life and behavior. An instrument to measure values, based on Spranger's concept, was developed by Allport, Vernon, and Lindzey (1960). Other pioneering work in defining and measuring values was done by Gordon (1976), Kluckhohn and Strodtbeck (1961), and Rokeach (1968, 1973). Underlying this work is the belief that an individual's values are related to his or her behavior in a systematic way. Thus, an understanding of values is helpful in understanding and explaining behavior.

Values are learned and are, therefore, influenced by several factors including culture, social environment, and individual characteristics (Kefgen &

Touchie Specht, 1976). Several researchers have documented the influence of culture on value formation (Kluckhohn & Strodtbeck, 1961) and have compared values across cultures (McCarrey, Edwards, & Jones, 1978; Schwab & Schwab, 1978). Also studied have been differences in values with socio-economic variables such as occupation (McCarrey et al., 1978; Posner & Munson, 1981) and religious commitment (Paloutzian, 1981; Weisbord, Sherman, & Sherman, 1980). The study of values can enhance understanding of behavior in different environmental contexts.

As values affect behavior and the decisions an individual will make, the study of values is also of interest to researchers who wish to understand particular aspects of behavior, such as clothing behavior. It has been postulated that values are determinants of clothing interest and clothing behavior. Clothing can reflect and communicate the wearer's values to others and the values of an observer will influence his or her perception of others and their clothing.

Several researchers interested in understanding selection and use of clothing have sought to establish relationships between general values and clothing behavior. Based on earlier conceptualizations of values, Lapitsky (1961) developed a measure of clothing values. She defined clothing values as:

"The wishes, desires, interests, motives, or goals which an individual considers worthwhile and thus are influential in determining his or her attitudes and behavior in the use of clothing" (p. 3). She identified five values — aesthetic, economic, political, and social plus a second social value reflecting the desire for social approval through clothing usage. Creekmore (1963, 1966) extended the work of Allport et al. (1960) to include sensuous and exploratory values and to allow for eight clothing values. These may be briefly described as:

- Aesthetic (valuing beauty in clothing, good design, and fit);
- Economic (wanting easy to care for clothes, which represent good value for money);
- Exploratory (interest in experimenting with different clothing styles);
- Theoretical (desire to understand the function of clothing and its properties, for example fibre content and care instructions);
- Sensuous (desire for comfort in clothing and "good feeling" in wearing it);
- Political (use of clothing to reflect status and impress others);
- Social (choice of clothing to conform to social norms); and
- Religious (emphasis on simplicity and modesty in clothing).

S.S. Senga, MSc is a recent graduate from the Clothing and Textiles Masters' Program at the University of Manitoba. S.A. Brown, PhD (University of Alberta) is Professor and Dean, Faculty of Human Ecology, University of Manitoba and C.A. Gonzales, MSc (University of Missouri) is Associate Professor, Department of Clothing and Textiles, University of Manitoba. The research was conducted at the University of Manitoba in 1984.

Clothing values have been shown to be positively related to general values, and also have been shown to influence clothing interest and selection (Creekmore, 1963, 1966; Dodson, 1980; Lapitsky, 1961; Sharma, 1980). For example, aesthetic values have been positively related to concern for enhancement of appearance through clothing and social values related to conformity in clothing (Creekmore, 1963; Sharma, 1980). Other research has demonstrated relationships between clothing values and both clothing behavior (Fratzke, 1976; Johnson, 1978) and more general aspects of consumer behavior, including shopping enjoyment and patronage patterns (Altpe-ter, 1963).

As noted earlier, values are influenced by the cultural environment, so it is to be expected that clothing values also will reflect cultural influences. Comparisons of clothing values between different cultures can, therefore, assist in understanding variations in clothing behavior in different cultural contexts. Studies comparing clothing values in different cultures and sub-cultures include comparisons of Americans in Pennsylvania and Filipinos in the Philippines (Mendoza, 1965), Chinese in Taiwan and Americans in Tennessee (Hao, 1971), and English and French Canadians (Conrad, 1973).

The results of these studies showed that clothing values were ranked differently by subjects from different cultures. For example, although Mendoza (1965) found some similarities in rankings between her American and Filipino subjects with the sensuous value ranked high by both groups and the social value ranked low, there were notable differences in the placement of the exploratory, economic, and theoretic values.

Studies comparing clothing values for different cultures have typically used samples drawn from cultural groups residing in their country of origin. Our understanding of clothing behavior and its determinants would be enhanced by an examination of the clothing values of a group that has migrated to another country.

The purposes of this study were to investigate the clothing values of such a group, to compare the group's ranking of clothing values to other studies, and to relate the rankings to selected demographic and socio-economic variables.

Methodology

Population

The group selected for this study was Filipino women residing in Winnipeg. Filipinos were among the later immigrants to Canada with the majority arriving within the last three decades. Many of the first Filipino immigrants were post-graduate students from the United States who had to leave that country once their studies were completed. Professionals such as teachers, doctors, and nurses were well represented. Early immigrants supplied information to friends and family on opportunities in Canada and encouraged them to migrate (Ramcharan, 1982).

A change in Canadian immigration policy in 1962 led to emphasis on the skills of immigrants and on family unification. Immigration regulations introduced in 1967 fostered the arrival of dependants and relatives of earlier immigrants (Chen, 1980). Thus, by 1981, there were 72,630 Filipinos in Canada (Statistics Canada, 1981). Although the rate of immigration has slowed, Filipinos are still one of the fastest growing non-white immigrant groups (Ramcharan, 1982). Substantial concentrations are found in Ontario (49%), British Columbia (17%), and Manitoba (16%).

In addition to the factors noted above, Filipinos in certain occupational categories were actively recruited to Manitoba, including nurses and garment workers. In contrast to the earlier group, some of these immigrants were from lower social strata in the Philippines, had lower educational attainment, and came from a wider area in their home country (Buduhan, 1972). In 1981 there were 11,660 Filipinos residing in Manitoba, mostly in Winnipeg, including 5,040 males and 6,625 females (Statistics Canada, 1981). The sex ratio is undoubtedly a function of the numbers in female-dominated occupational categories.

The culture and social structure of Filipinos encourages a tendency to group together allowing for socialization and mutual assistance. However, unlike some other immigrant groups, Filipinos have tended to encourage Canadians to become acquainted with Filipino culture as well as have supported their own group's acceptance and integration (Ramcharan, 1982). Many Filipinos apparently wish to blend into the Canadian cultural mix as easily as possible. This suggests that,

if clothing values are strongly influenced by culture, Filipino immigrants to Canada may hold different values from Filipinos in the Philippines and that length of residence in the West also may have an influence. These factors along with their strong presence in the city of Winnipeg and the mix of population in terms of length of residence in the West, place of origin in the Philippines, age and socio-economic status make the Filipinos a suitable group for this study. They also were selected because of the existence of Mendoza's (1965) study as a comparison, and the personal interest of the investigators.

Sample

A survey was conducted with a sample of 500 women drawn at random from a master list developed from membership lists furnished by various Filipino organizations. There was some overlap among the lists, but it was estimated that at least half of the adult Filipinos belong to one or more organizations as recreational and social organizations are very important in Filipino social life (Ramcharan, 1982). This procedure has limitations, as non-members of the organizations are excluded. However, this was the only available sampling frame which allowed the sample to be drawn from one ethnic community. Our best estimate is that the sample was approximately 10% of the adult, female Filipinos in the city.

Each potential respondent was mailed a covering letter, the clothing values instrument, and a questionnaire designed to gather demographic, social, and cultural information about the respondents. Follow-up letters were sent to all respondents approximately 1 week after the first mailing.

Instrument

The Clothing Value Measure, devised by Lapitsky (1961) and revised by Mendoza (1965) was used in this study. The two-part instrument was designed to determine the relative importance of eight clothing values: aesthetic, economic, exploratory, political, religious, sensuous, social, and theoretic.

Part I comprised 28 partial statements with two alternative endings, each representing a clothing value. For example:

1. If you were attending an important social function, which

- would you rather work on —
 (POL) a. that you are dressed in the latest fashion;
 (AES) b. that you are beautifully dressed?
 2. If you needed a new dressy blouse, would you —
 (SEN) a. buy a silk one, with a delightful smooth texture but which may not be easy to care for;
 (ECO) b. look for a similar one in an easy care fabric?

In the original measure respondents distributed three points, in any combination, to these alternatives. However, in a pre-test the respondents tended to make a binary choice (3-0 or 0-3). Consequently, respondents were asked to simply check their preferred alternatives following Carpenter (1977) and Hart (1977). Rank-order correlations on the pre-test results using both techniques showed no significant difference in results. In addition, only 28 statements were used rather than the original 56 because it was felt the length would discourage subjects from responding. In this way each clothing value was paired with each other once, so each value appeared seven times. The sum of the number of times a value was chosen gave an individual's score on that value. Scores could range from 0 to 7.

Part II comprised five items, each with eight endings representing the eight clothing values. For example:

1. I would rather wear clothes which —
 (POL) a. make me look distinguished in a group.
 (ECO) b. take as little time in care as possible.
 (SEN) c. feel good when I have them on.
 (EXP) d. I can combine together in many ways.
 (AES) e. have very good combinations of colors, design, and textures.
 (REL) f. show others what I believe.
 (THE) g. are of a suitable fabric for the purpose.
 (SOC) h. are not more expensive or more fashionable than those my friends can afford.

Two of the statements in the original measure were excluded as inappropriate for the sample. Respondents were asked to give a rank-order of preference for these endings. The sum of the rankings for each value represented each individual's score for that value.

Scores could range from 0 to 40. A score of 0 was theoretically possible as an individual may not have ranked all eight values.

The sum of scores from Parts I and II gave each respondent's total score for each value. Scores could range from 0 to 47 for each value.

In addition, respondents were asked to answer questions about age, occupation, employment status, income, religion, marital status, level of education, place of birth, place of residence in the Philippines, way of life in the Philippines, and place(s) and length of residence in the West, including Canada, the United States, and Europe.

Results

Profile of the Sample

A total of 150 usable responses was received, although several had some missing values. Respondents ranged from 15 to 72 years of age, with 35 to 44 as the modal category. The majority (57%) were married, although 38% had never been married. Catholicism was the religion of 87%, not surprising in view of Spain's early colonization of the Philippines in the sixteenth century (Burley, 1973) and the fact that it is still a predominantly Catholic country.

Most respondents (85%) were employed. Based on the Pineo, Porter, and McRoberts (1977) classification, occupations included professionals in various fields, middle management, and supervisors (8%); skilled workers (8%); semi-skilled workers (56%); and unskilled workers (17%).

Many respondents (58%) had college education or degrees. Respondents had a range of incomes with 38% falling into the modal category of \$10,000 to \$19,999.

While 40% of the respondents had lived in the West 11 years and over, a substantial number also fell in the 1 to 5 year category (28%) and the 6 to 10 year category (32%). By far the majority (88.5%) had resided only in Canada among western countries.

Virtually all the respondents were born in the Philippines, in the rural areas. The rural areas were home for 57% as children. There was a tendency for movement to the cities as Filipinos grew older to seek a higher education or to find better jobs (Nakpil, 1982). Among the respondents, 52% had spent their adolescence and 65% of

Table 1. T-tests for Adjacent Ranks for Clothing Values (N=121)

Rank	Clothing Values	M	SD	t
1	Sensuous	34.51	8.63	4.98*
2	Aesthetic	29.08	8.33	1.50
3	Economic	27.55	7.55	0.73
4	Theoretical	26.87	6.91	1.01
5	Exploratory	25.96	7.08	7.87*
6	Religious	18.96	6.76	0.13
7	Political	18.83	8.53	2.19*
8	Social	16.70	6.48	

Note. The *t*-test measures differences between the mean of each value and the mean of the next lowest value in the rank order.

* $p \leq .05$ ($t = 1.658$)

their adulthood in urban areas. A relatively equal percentage of respondents identified with the rural (49%) and urban (51%) way of life.

Clothing Values

Means and standard deviations were calculated for each clothing value and the values rank-ordered by means. The relative importance of the eight clothing values is shown in Table 1. T-tests were used to test for significant differences between the mean of each value and the next lowest value in the rank order. Significant differences between ranks 1 and 2, 5 and 6, and 7 and 8 were found.

Spearman's rank-correlations were used to examine the relationships between clothing values and age, income level, and length of residence in the West. A decision rule of $\alpha \leq .05$ was used. Results showed a significant positive relationship between the social and theoretic clothing values and age; and a negative relationship between age and aesthetic and exploratory values (Table 2). Income was positively correlated with the eco-

Table 2. Spearman Correlation Coefficients for Clothing Values and Age, Income, and Length of Residence in the West (N=121)

Clothing Values	Age	Income	Length of Residence in the West
Aesthetic	-.19*	.17	-.02
Economic	.11	.29*	.18*
Exploratory	-.20*	.00	.01
Political	-.16	-.07	-.10
Religious	-.07	-.23*	-.10
Sensuous	.05	.06	.12
Social	.22*	-.27*	.03
Theoretical	.19*	.00	.04

* $p \leq .05$

conomic value but negatively with the religious and social values. Length of residence in the West and the economic clothing value were positively correlated.

Contingency tables were constructed and chi-square was used to examine differences in clothing values with selected socio-economic and demographic variables. There were no significant differences in values with education, employment status, marital status, religion, birthplace, way of life, and place of residence in the Philippines. There was a significant difference in scores on the aesthetic clothing value with occupation, $\chi^2(8) = 17.4$, $p = .03$; and with place of residence in the West, $\chi^2(2) = 7.2$, $p = .03$.

Among occupational categories, professionals, semi-professionals, skilled workers, and technicians had higher aesthetic value scores than either supervisory personnel or semi-skilled workers. In these occupational categories, more respondents had average scores, while more unskilled workers had low scores.

A much greater number of those who had lived in Canada, the United States, and Europe had higher scores on the aesthetic value than those who had lived only in Canada. Those who had lived in the West and only in Canada were divided quite evenly among the low, average, and high score categories.

Discussion

Ranking of Clothing Values

The respondents in this study ranked the sensuous value as most important and the social clothing value as the least important. This accords with Mendoza's (1965) findings for her Filipino respondents. The sensuous value was also ranked first by English-Canadian women in Conrad's (1973) study and by future brides in Johnson's (1978) study. The value was ranked second by Mendoza's American subjects and Conrad's French-Canadian respondents. In contrast, in Hart's (1977) study of junior high school respondents, the sensuous value was ranked seventh by both Afro-American and Anglo-American subjects.

The social clothing value held varying rank in other studies: last in Lapitsky's (1961) study, sixth for both sub-cultural groups in Conrad's study, but third in Hart's study, and first in

Johnson's study. Among other values, the aesthetic value was frequently ranked high in these studies, in accord with its second place ranking in the present study.

Clothing Values, Demographics, Socio-Economic Variables

As noted earlier, significant relationships with clothing value scores were found only with age, income, and length of residence in the West. Significant differences were found in scores on the aesthetic value with occupation and place of residence in the West.

Age. The value measuring the aesthetic properties of clothing was negatively correlated with age. This means that for this group of subjects, concern for beauty in clothing decreased with an increase in age. Findings for Mendoza's (1965) Filipino group showed a positive correlation between age and the aesthetic value. Other studies reviewed found no significant relationship between the aesthetic clothing value and age. According to Williams (1977) older women in North America are no longer accorded status and attention and therefore feel that they are unlovable, ugly, and worthless. It has been suggested that older women no longer feel that beauty in clothing is as important and functionality of dress takes precedence. There seems to be some evidence for that assessment in the present study.

The exploratory clothing value was also negatively correlated with age. This value measured how much a person valued experimenting with clothes. Tyrchniewicz (1972) found that clothing interest decreased with age. As the definition of clothing interest in Tyrchniewicz's study paralleled that of the exploratory clothing value in this study, the findings of this study support Tyrchniewicz's findings. Younger people are more likely to try new fashions and are more daring in their clothing choices. Perhaps they need to establish their own role identities by experimenting with new and different clothing.

In Conrad's (1973) study, however, a significant positive relationship was found between the exploratory clothing value and the age of her English-Canadian subjects. The majority of the English-Canadian subjects were between 19 and 25 years old while the

majority of the subjects in both Tyrchniewicz's study and the present study were between 30 and 40 years old. This suggests that when women reach the ages of 30 to 40 years, their interest in experimenting with clothes decreases and continues to decrease as they grow older. Perhaps for this age group, conventional and staple clothing are more popular and appropriate to the workplace and other situations.

Significant positive relationships were found between age and the social clothing value. Several research studies have found that the social clothing value was negatively related to age (Conrad, 1973; Mendoza, 1965). These studies have found that younger people are more conforming when it comes to clothing choices. Perhaps, younger people have stronger desires to become "part of the group" so that peer group preferences play an important role in determining their clothing behavior. They dress like their friends even if it means wearing unusual or immodest attire. The subjects in these studies, however, were much younger and the age ranges were not as large as those of the subjects in the present study, which may account for the difference in the findings of this study.

Significant positive relationships also were found between age and the theoretic value which measures the individual's desire to understand and explain why clothing is needed and why it satisfies. None of the studies reviewed produced findings similar to this.

Income. The economic clothing value was positively related to income. That is, the desire for practicality in clothing use and selection increased as income increased. None of the other studies reviewed found significant relationships between these variables.

The religious clothing value had a significant negative relationship with income. Mendoza (1965) found a negative relationship between this value and the occupational level of the fathers of the Filipinos in her study. Assuming that income increased as the father's occupational level increased, the relationship found here between income and the religious value parallels that found by Mendoza. A possible explanation for this relationship is suggested by Bibby's (1980) finding that Canadians experiencing financial, physical, and friendship deprivation

were slightly more inclined than others to attend church services regularly, to see themselves as religious, and to have a traditional Christian orientation. However, more research would be required to explore this possibility as lower income does not necessarily imply financial deprivation. However, a substantial number of respondents were in quite low income categories (less than \$20,000).

The social clothing value also had a significant negative relationship with income. This means that a woman with a low income would tend to avoid wearing clothing that is more expensive and more fashionable than that worn by her friends and would tend to lend clothing to others. This agrees with Edmond's (1982) findings: higher levels of clothing conformity were found in women earning less than \$20,000 compared to those earning over \$20,000.

Length of residence in the West. This variable had a significant positive relationship with the economic clothing value. This means that the longer the Filipino women lived in the West, the greater importance they attached to the efficient management of time, energy, and money in both clothing use and selection.

Having moved to Canada to seek a better life and to upgrade their socioeconomic position, the women may have placed more emphasis on getting the most out of their money when making clothing purchases because they felt that they had worked hard for their economic rewards.

Occupation. The tendency of professionals, semi-professionals, skilled workers, and technicians to have high aesthetic value scores may be explained by a greater likelihood that they face considerable peer pressure to dress according to the prevailing view of attractive clothing.

Perhaps, the subjects in the middle management and supervisor category, who did not value aesthetics in clothing as much as those in the other categories, had more direct contact with junior employees. Also, they may have felt that they should not dress very differently so as to establish better rapport with employees.

Place(s) of residence in the West. Those who had lived in Canada, the United States, and Europe attached more importance to beauty in clothing

than those who had lived only in Canada. This could be attributed to those who have lived in several places in the West having a greater exposure to fashion information, fashion centres, and merchandise. Exposure to high fashion and expensive clothes may have heightened their aesthetic appreciation of clothing, although their incomes would probably have limited purchasing such garments.

Conclusion

The clothing value hierarchies of the Filipino respondents in this study showed some remarkable similarities with those of respondents in Mendoza's (1965) study. Even with a time lapse of almost 20 years, the values of the Filipinos were quite similar to those of the Filipino university women in the Philippines. The first and fourth through eighth ranked values were the same. There was a reversal of the aesthetic and economic values, although in the present study the difference in means between these two values was not significant. This similarity may be a result of the existence of much western, particularly American, influence in the Philippines, so that cultural changes after immigration were not as marked as those experienced by immigrants from less westernized countries.

Comparisons with Conrad's (1973) Canadian subjects again showed considerable similarities, with the Winnipeg subjects ranking the first three values in the same order as Conrad's English-Canadian subjects. The French-Canadian subjects also ranked the same three values most highly, but reversed the order of one and two — the aesthetic and sensuous values. The greatest differences were in the ranking of the last three values. Although they were religious, political, and social for all three groups, the order differed considerably. Nonetheless, the similarities between the current results and those of Conrad suggest that factors other than culture may be influencing clothing values. The correlations in the present study between age and several values and the different findings of Hart (1977) and Johnson (1978) who used younger respondents, suggest that this factor may be a more important determinant of clothing values. Likewise, the relationships between length of residence in the West and the economic

value, and between income and several of the values are noteworthy.

Values are one of several individual variables that influence clothing behavior, and culture is one of the social variables that influences individual decision making. The study adds to the body of knowledge on these influences. It seems, however, that age and social structure may be more strongly related to clothing values than culture. After residing in the West for a time some Filipinos may have acquired higher education, better jobs, and higher incomes, which in turn may have influenced their clothing values and behavior. The relative importance of age, social structure, and culture as determinants of clothing values is worthy of further research.

Despite a somewhat limited sample size, this study is valuable because it successfully measured the clothing values of a particular ethnic group in Canada. These results add to the literature on one of the groups that make up Canada's multicultural mosaic. Despite the difference in the nature of the samples, the results provide insight into how little the clothing values of the subject group appear to differ from those measured 20 years ago with a group in the Philippines. This current study provides a useful basis for comparison of values between this ethnic group and the same ethnic group in its home country and further research is currently underway to measure the clothing values of Filipinos in the Philippines, to provide these comparative data.

Relatively little has been published on clothing values of Canadian subjects, and this plus the fact that the study measured the clothing values of adults sampled from the general population, rather than university or school students, adds to its value. Also of interest would be continued study of the relationship between clothing values and general values among Filipinos and other ethnic groups, and of the effect of clothing values on consumer behavior for clothing. □

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Research Section

Canadian Home Economics Journal

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October 1985 - October 1986

Phyllis J. Johnson, Editor

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Call for Papers

Research Sessions — International Federation for Home Economics Congress

Submissions are invited for the Research Sessions of the XVIth Congress of the International Federation for Home Economics to be held in Minneapolis, Minnesota, July 24-29, 1988. Submissions may be made in any of the subject matter areas of home economics and may be for either presentations or poster sessions. Details concerning the submissions and a copy of the application form may be obtained from:

Dr. Margaret Arcus
IFHE Research Committee
School of Family and Nutritional Sciences
University of British Columbia
Vancouver, BC V6T 1W5

All research applications for this Congress must be submitted by June 1, 1987.

Book Reviews

Food Fundamentals (4th ed.) by Margaret McWilliams. (1985). Toronto: John Wiley, 600 pages; price unknown.

Professionals with a deep appreciation for food basics will enjoy reading *Food Fundamentals*. A common thread throughout this textbook is that optimization of food palatability can be achieved only through a sound grasp of the elements of food science. The author's love of food — carefully selected, expertly stored, lovingly prepared and proudly presented, exudes from every page.

Food Fundamentals "has been completely rewritten to help you learn the fundamentals of food and its preparation, with attention to providing study aids". The book is intended for the food-related student who has a basic understanding of organic chemistry, or, is studying the subject concurrently. Self-contained "Science Notes" dot the text for readers yearning for or requiring a more thorough understanding of the chemical processes under discussion. Selected study questions close each chapter, providing appropriate introductions for pertinent, ensuing laboratory work.

Part One of this textbook is devoted to the many stages of proper food preparation. The selection, storage, preparation techniques, and pleasing presentation of constituents of the basic four food groups covers approximately 80% of the text. Chapters on food preservation and food safety are included in this section. While the range of material is wide, depth varies. Supplementary lectures and laboratory studies will provide consistency in depth.

Part Two, "Food in the Context of Life," is most refreshing. The author applies the discipline of food science to the common uses of food in modern society. Chapters on food and nutrition, menu planning, meal preparation, meal service, and hospitality bring relevance and practicality to the principles covered in Part One.

Numerous tables provide useful, quick, and handy references for cooks

of all types. Illustrations of molecular activity can be found while illustrations on proper preparation techniques cannot. Three valuable appendices are included: the first lists the name and function of approximately 240 additives; the second consists of a comprehensive glossary; and the third provides nutritive values of several common foods.

Food Fundamentals is not contemporaneous. Of the references listed, few are from the 1980s. Modern preparation tools and equipment such as food processors, microwave ovens and matching cookware, and convection ovens are given passing mention. Freezer jams, light-setting fruit pectin, mousses, and tofu are a few commonly consumed foods void of mention. Thus, the book's applicability to food preparation as it is practised in today's homes and its acknowledgment of recent research begs questioning.

Food Fundamentals is clearly written for American students. All measures and temperatures are given in Imperial terms. Grading, selection, and purchasing of food is discussed in American terms. Current diversity in fruits, vegetables, and dairy products is viewed from the perspective of the American market. Therefore, the book's suitability for Canadian colleges and universities must be considered.

Reviewed by:

Carol T. Culhane, BScHEc, MBA
Senior Consultant
Morris Graphics Limited
Toronto, Ontario

Nutrition and Diagnosis — Related Care by Sylvia Escott-Stump. (1985). Philadelphia: Lea and Febiger, 344 pages; \$31.25.

The author states that this publication was developed as a "tool to supplement other texts and references used by dietetic practitioners, interns and students to quickly assimilate and implement care for numerous disorders." It easily accomplishes this

purpose by succinctly, yet thoroughly, covering the nutritional care requirements for over 150 different diagnoses or treatment categories, from the normal life-cycle conditions to the various clinical and pathophysiological conditions such as the cardiovascular or gastrointestinal disorders. It is clearly organized and laid out making it possible to reference required information quickly.

For each separate diagnosis the usual hospital stay and a brief definition of the disease is given followed by a discussion of its treatment via the headings of "objectives, dietary recommendations, profile, side effects of common drugs used and patient education". Additional clarification is provided, where necessary, at the beginning of the major treatment category and/or through the inclusion of a "comments" section in the discussion of a specific diagnosis or condition.

Two extensive appendices are included providing useful tables and illustrations. The first appendix provides a nutritional review by generally discussing the muscle, bone, and body fat changes accompanying the different life stages and disease conditions. This appendix also reviews the amino acids, their essentiality, and how this relates to parenteral nutrition; and the minerals and the vitamins, as well as their associated risk factors, and deficiency and hypervitaminosis signs and symptoms.

Appendix B discusses the dietetic process, charting using the "SOAP" method, and provides numerous sample forms for assessing and implementing patient care.

Used on its own, the information provided in this manual would not be adequate to fully treat each of the diagnoses covered. However, when used as it is intended — as a supplement to other texts and references — it is a valuable resource.

Reviewed by:

Heather Dolman, BHE
Delta, BC

Social Marketing: New Imperative for Public Health by Richard K. Manoff. (1985). New York: Praeger Publishers, 293 pages; \$32.95.

This book is a response to the rising interest in social marketing. Social marketing is the use of marketing principles to promote social ideas. The author, a talented and respected communications professional, has criticized the somewhat fragmented approach of many health education programs and has presented social marketing as an alternate comprehensive approach to program design and delivery. This requires a clear definition of the problem, and a statement of objectives. The importance of carefully researching and defining the target audience so that the marketing program can be tailored to meet its needs is stressed. Another key point made is the potential of the mass media to reach large segments of the population. The media's effectiveness rests on the extent to which the other elements of the marketing plan are applied. A media program in itself does not constitute a social marketing program, but rather is an integral component of the marketing programs that are described by Manoff. The case histories supplement the discussion of social marketing.

The book is organized into three sections. The first section discusses the theory of social marketing, the second section outlines the elements of social marketing and their application in education programs, and the third section presents case studies of social marketing programs that have been implemented in North America and developing countries. This organization allows each section to be referred to independently.

The book is well written and provides a thorough discussion of the potential usefulness of a social marketing approach in the development, implementation, and evaluation of public health programs. It would be a useful reference for college level courses in community and health education, program planning, and for the continuing education of professionals.

Reviewed by:

Debra Lynn Jones, BASc, MSc
Winnipeg, Manitoba

Women and Fatigue by Holly Atkinson (1985). New York: G.P. Putnam, 319 pages; \$27.95.

"American women are exhausted. Fatigue is one of the most common complaints voiced by women workers." Fatigue, the feeling of being tired, exhausted, worn out, weary, weak, lethargic or sleepy has become a normal part of daily life for many women. But "You do not have to accept chronic tiredness. You can beat your fatigue!" states Holly Atkinson, a physician and former reporter for CBS Morning News.

Women and Fatigue is an excellent and interesting book written in a warm, personal style with the author drawing many examples from her own life. Her sense of humor shines through along with her genuine caring and concern. This book offers women from all walks of life the chance to take a refreshing look at their lives and the causes of their fatigue. There are hundreds of practical suggestions throughout the book which readers can use to take positive steps towards change.

The book is divided into four sections each dealing with a different aspect of women's lives. A detailed questionnaire is included in the first section to help women become aware of specific issues which may be contributing to fatigue. The lifestyle section discusses the many fatigue-related habits that women have acquired such as dieting, smoking, sedentary lifestyle, drinking excessively, and abusing drugs and medications. The third section deals with women's role conflicts and the fact that while women have taken on many new responsibilities they are often still responsible for their traditional chores. This leads to overwork and to psychological and emotional stress. This section also explores the additional work-related issues that women have to face such as poor pay, sexual harassment, child care problems, and discrimination. The final section gives advice on how women can empower themselves in relation to their physicians.

This book provides a useful and enlightening way for women to make positive lifestyle changes. I highly recommend it.

Reviewed by:

Ann McConkey, BHEc, R.D.
Nutrition Counsellor,
Women's Health Clinic
Winnipeg, Manitoba

Elizabeth Baird's Favourites — 150 Classic Canadian Recipes by Elizabeth Baird. (1984). Toronto: James Lorimer, 152 pages; cloth \$19.95 or spiral \$12.95.

How does a great cook and food writer choose 150 of her favorite recipes — probably with some difficulty. *Elizabeth Baird's Favourites* is a collection of mouth-watering recipes gleaned from the author's personal experimentation and adaptation, and from a wide circle of friends, acquaintances, fellow cooks, and professional chefs across Canada. Baird's creative approach to cooking, her use of fresh, wholesome ingredients, and an appreciation of the diverse ethnic scope of Canada are clearly evident throughout the book.

The recipes have been organized into nine sections from Appetizers through to Desserts, Breads, Drinks and Preserves. Each recipe is preceded by a credit to its source or inspiration. Helpful preparation hints and serving suggestions are included. Metric and Imperial measures are given. Some recipes are quick and easy to prepare while others are slightly more complicated. Except for the attractive cover the book is without photography.

Elizabeth Baird's Favourites is a veritable gold mine of culinary delights and cooking styles. There is something here to whet the appetite of everyone interested in superb food and innovative Canadian cooking.

Reviewed by:

Wendi Hiebert, BHEc
Home Economist
Norway House, MB

Book Reviews

If you are interested in reviewing a book please contact the Book Review Editor stating your area of interest. A complimentary book which may be kept will be sent to you for review.

Book Review Editor

Wendy MacLean
161 Browning Blvd.
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Abstracts of Current Literature

Family/Consumer Studies

The effects of demographic characteristics on consumer information periodical readership and financial knowledge.

Carter, L.S., Andrus, D.M., & Hanna, S. (1986)
Journal of Consumer Studies and Home Economics, 10(2), 139-150.

This paper presents the results of an examination to determine whether selected demographics have an effect on the choice of consumer information periodicals and whether the usage rate of these periodicals have an effect on financial management knowledge. A random selection from the telephone books of Montreal's West Island area and Quebec's Eastern Townships area yielded a sample that consisted of 136 French-speaking and 98 English-speaking interviewees. Telephone interviews were used to collect the data. A matrix selection pattern was used to consider male subjects. Information was collected on money management practices, use of information sources, knowledge of personal finance terminology and concepts, plus demographics. Use of consumer information was the dependent variable. Results revealed that males and French-speaking respondents have a significantly lower readership/awareness index than females and English-speaking respondents. Effects were also found for the income, rural location, and education variables. The researchers conclude that consumer information periodicals do not meet the needs of disadvantaged groups.

The family life cycle revisited: A need for new considerations.

Pol, L.G., & Rader, C.H. (1986)
Journal of Consumer Studies and Home Economics, 10(2), 171-184.

The authors of this paper argue the necessity for the development of a revised family life cycle concept that would more clearly explain consumer behavior. The authors state that changes have occurred in family size and structure and in family formation and dissolution. Data used to determine these changes are taken from the U.S. Bureau of Census, 1982-1983 and covers the years from 1945-1982. Fluctuations in birth rate are noted, including an increase in childlessness. An increase in the labor force participation rate of women with children under 6 years of age is noted. Family structure now includes many mother-only and father-only headed households. Variables affecting family formation and dissolution are: age at first marriage, those who never marry, and decrease in size of family. The authors conclude that the significant changes within the family in the last 30 years require the redefinition of the family life cycle concept to include these changes which would enable a more accurate measurement of purchasing behavior. The authors propose a model of family life cycle which includes the following variables: relationship with member of the opposite sex, age of householders, status of children, and female labor force participation. They propose that these four variables, when divided into their various components, would better reflect demographic and consumption relationships.

Assets and debts in a consumer portfolio.

Bryant, W.K. (1986)
The Journal of Consumer Affairs, 20(1), 19-35.

The purpose of this paper was to examine consumer asset and debt responses to disequilibrium in a portfolio context, and to changes in family income and household demographics. Data used in this research were collected by the Survey Research Center, University of Michigan for a 1977-78 Survey of Consumer Credit. The survey yielded a sample of 2,191 primary family units who were not students or retired. Variables used in analysis were: value of owned house, home mortgage, other debt, car value, car debts, value of other real estate, debt of other real estate, checking assets, other liquid assets, total family income (1978), judgements on being better off or worse off, city or rural resident, black or white, area of residence, age, family size, and marital status. Half of the female-headed households judged themselves better off in 1978 than in 1977 with the other half being worse off. Female heads of families were much older than heads of two-spouse families. When disequilibrium presented itself in the portfolio, adjustment was not instantaneous and was dependent upon other disequilibrium. Stronger relationships were present between the asset and the debt concerned with that asset. Disequilibrium in car value and debt affected housing ownership, mortgage, and other real estate but the reverse was not true. Adjustment rates were found to be slower for female-headed families and for black families. Although this may be a result of lower income, it may also be a result of discrimination. Stage in life cycle and family size affect house ownership.

Conceptual and methodological issues in research on aging in rural versus urban environments.

Matthews, A.M., & Heuvel, A.V. (1986)
Canadian Journal on Aging, 5(1), 49-60.

This paper on Canadian research of the aged discusses problems with the existing research, particularly with the concept and methods used in the research. The authors compare these research problems to those found in the U.S. research. The researchers point to and discuss the lack of a precise, consistent definition of rurality. This creates problems for researchers who attempt to either verify the findings or generalize the results. Comparisons of rural and urban elderly also suffer from inconsistent definition. The third research problem discussed is the length of rural residency. The authors suggest that these three research issues create replication, verification, and generalization problems with the U.S. findings and, further, suggest that a review of Canadian literature on the aging reveals these same problematic concerns. The authors suggest that research on Canada's aging requires researchers to be aware of the lack of concrete definition in this emerging field of research.

Parents and drugs revisited: Some further evidence in support of social learning theory.

Dembo, R., Grandon, G., La Voie, L., Schmeidler, J., & Burgos, W. (1986). *Criminology*, 24(1), 85-104.

Using the results of a latent variable structural model, the researchers present their findings after examining the effects of family closeness on youths' use of alcohol, tobacco, and marijuana. The subjects were divided into three groups, children of parents who experienced low, moderate, and high levels of drug use. Questionnaires were administered during a class period in 1976 in a South Bronx, New York junior high school. This resulted in a sample of 1,101 youth with the majority being Puerto Rican. Of the sample, 49% were male and 51% were female. Subjects were questioned about eight categories of drugs: tobacco, alcohol, marijuana, LSD, depressants, narcotics, solvents, and stimulants. Information about parental drug use was also collected from the students, thereby limiting the generalizability of the results. The social learning view was supported by the relationship found between attachment to parents and drug use by the youth. Youth in the low drug use by parent group reported greater caring and less use of drugs. Neither gender nor ethnicity were significantly related to drug use or family closeness. More research is needed in this area with various socio-cultures and demographics.

Supplementary listing of articles

Mortality rates five years after admission to a long term care program. Gutman, G., Stark, A.J., Jackson, C., & McCashin, B. (1986). *Canadian Journal on Aging*, 5(1), 9-18.

The differentiation of multigenerational households. Rosenthal, C.J. (1986). *Canadian Journal on Aging*, 5(1), 27-42.

Planning styles in single-parent families. Buehler, C., & Hogan, M.J. (1986). *Home Economics Research Journal*, 14(4), 351-362.

Consumer response to adjustable rate mortgages: Implications of the evidence from Illinois and Wisconsin. Mills, D.L., & Gardner, M.J. (1986). *The Journal of Consumer Affairs*, 20(1), 77-105.

Parental discipline and control attempts in relation to adolescent sexual attitudes and behavior. Miller, B.G., McCoy, J.K., Olson, T.D., & Wallace, G.M. (1986). *Journal of Marriage and the Family*, 48(3), 503-512.

Shift work among American women and child care. Presser, H.B. (1986). *Journal of Marriage and the Family*, 48(3), 551-564.

Submitted by
Lenora Wiebe, BSHEC
MSc graduate student

Food/Nutrition

Snacking patterns and nutrient density of snacks consumed by Southern girls.

McCoy, H., Moak, S., Kenney, M.A., Kirby, A., Chopin, L., Billon, W., Clark, A., Disney, G., Ercanli, F.G., Glover, E., Korslund, M., Lewis, H., Ritchey, S.J., Schilling, P., Shoffner, S., & Wakefield, Jr., T. (1986). *Journal of Nutrition Education*, 18, 61-66.

Information regarding snacking habits was obtained from 1224 female adolescent volunteers living in eight southern U.S. states. The snacking data were examined according to age (12-, 14- and 16- years), race (black, white) and per capita family income (low, middle, high). Subjects provided two 24-hour dietary recalls plus detailed information regarding

time, source, and reasons for consuming snacks. Snacks were defined as all foods and beverages not identified as part of a meal.

Snacking was common, with afternoon snacking at home being most frequent regardless of age, race or income group. The most common reasons for snacking at this time were given as "being hungry" or the food "looks good". Meals consumed by these subjects had higher nutrient densities (amount of nutrient per 1000 kcal) than reported snacks. Snacks did, however, provide more than one-third to one-half of the Recommended Daily Allowance (RDA) for riboflavin, thiamin, and vitamin C. Notable contributions to daily intakes of other vitamins and minerals were made by snacks. The lowest nutrient intakes, relative to the RDA, provided by snacks were folacin, vitamin D, zinc, and iron. This study found that blacks tended to snack more frequently than whites before noon and that they obtained these snacks from sources away from home more often than did whites.

The authors concluded that the total nutrient intakes of adolescent girls seem to be significantly influenced by their snack choices. Hence, efforts to improve the nutrient intakes of adolescent females would benefit from educating them to choose nutrient dense snacks.

Dietary changes resulting from the Expanded Food and Nutrition Evaluation Program.

Amstutz, M.K., & Dixon, D.L. (1986). *Journal of Nutrition Education*, 18, 55-60.

Evaluation of the effect of the Maryland Expanded Food and Nutrition Education Program on the diets of program participants was discussed in this paper. Subjects consisted of 129 homemakers who participated in and subsequently graduated from the program. These were randomly selected from the population who enrolled in a defined 1-year period (October 1976-September 1977). The program curriculum consisted of 12 lessons given to individuals and small groups by paraprofessional aides. These aides administered 24-hour recalls to the subjects upon enrolment, at graduation, and at a follow-up about 20 months later. A numerical score based on the number of servings from the four food groups was assigned to each recall. As well, the absolute number of servings from a fifth food group, those foods high in fats, sugars, and alcohol, was determined for each recall.

Comparison of enrolment and graduating diet scores indicated diet improvement occurred during program participation. The follow-up diet scores had dropped, indicating some regression in dietary habits once out of the program. However, graduates retained 75% of the diet improvement. Subjects who were consuming three or more servings per day from the fifth food group upon enrolment, reduced their consumption of these foods during the program. At follow-up their consumption of these foods was still below the enrolment values.

While the lack of a control group prevented the authors from making firm cause and effect conclusions, their comparison of the graduated subjects with a group of newly enrolled program participants (N = 194) provided evidence that the program participation may have been the reason for the improved diets of the graduates. That positive dietary changes occurred and that these changes were maintained by graduate homemakers is encouraging news for the long-term value of nutrition education programs.

Nutrition knowledge and body-image satisfaction of female adolescents.

Searles, R.H., Terry, R.D., & Amos, R.J. (1986)
Journal of Nutrition Education, 18, 123-127.

The relationship between body-image satisfaction and knowledge of nutrition concepts related to weight control among 138 females aged 14 to 16 years was examined in this study. Participants were recruited from six junior and senior high schools located in rural communities. Secord and Jourard's Body Cathexis Scale was used to assess body-image satisfaction. Nutrition knowledge was measured using 24 pre-tested multiple choice questions in the content areas of energy and energy balance.

Overall, the body aspects related to skeletal size were more satisfying than those related to body fat. Body aspects the participants were most frequently dissatisfied with included weight, hips, thighs, and bottom. Aspects that were most frequently rated as satisfactory included height, leg-length, hands, shoulder width, and calves. Of the participants, 60% had scores indicating an overall degree of satisfaction.

Participants' knowledge of the general principles of energy intake and expenditure, as related to weight loss, appeared satisfactory. However, less than one-half of the participants were clear regarding principles essential for safe weight loss. These principles dealt with areas such as the energy needs of adolescent females, a safe rate of weight loss, and recognizing that some body fat is essential for health.

This study failed to find a significant correlation between body-image satisfaction scores and nutrition knowledge test scores for this group of rural females. Significant correlations were found between the nutrition knowledge test scores and both the mothers' educational levels and the mothers' socio-economic levels.

One of the primary reasons for dieting among adolescent girls seems to be a dissatisfaction with body-image. While finding no significant correlation between nutrition knowledge and body-image satisfaction, this study found that adolescent girls may lack knowledge about basic weight control principles essential to safe weight loss.

Comparison of aspartame- and fructose- sweetened layer cakes: Importance of panels of users for evaluation of alternative sweeteners.

Hess, D.A., & Setser, C.S. (1986)
Journal of the American Dietetic Association, 86, 919-923.

This study compared the results from two types of trained sensory panels, those with and without known carbohydrate metabolic diseases, who evaluated the quality of layer cakes. Panelists assessed four cake flavors (chocolate, lemon, orange, spice), two baking methods (conventional, microwave), and increased levels of two sweeteners (aspartame, fructose). All panelists evaluated cake texture, flavor, and overall eating quality using 5-point descriptive rating scales.

No significant differences were found between the panels for the textural qualities, indicating the similar training and sensitivities of the panels. All panelists judged the microwave-cooked cakes significantly less moist than conventionally baked cakes.

This study showed that perception of flavor is likely to vary from healthy panelists to those with carbohydrate metabolic diseases. Results indicated that diabetic or

hypoglycemic persons do not perceive sweetness to be different between levels of aspartame or between aspartame plus different levels of fructose. Results also indicated that aspartame alone was perceived as low in sweetness by panelists with carbohydrate metabolic disease. Therefore, aspartame alone may not be suitable for use in baked products for persons with these disorders. However, a combination of aspartame and 25% fructose consistently resulted in increased sweetness scores.

The healthy panelists in this study, perceived the cakes' sweetness and overall eating quality as higher and the crust bitterness as more intense than panelists with carbohydrate metabolic diseases. Thus, the authors feel that panelists in sensory flavor studies should be potential users of the products being tested, as their flavor perception may vary from that of non-users.

Provisional tables on the content of omega-3 fatty acids and other fat components of selected foods.

Hepburn, F.N., Exler, J., & Weihrauch, J.L. (1986)
Journal of the American Dietetic Association, 86, 788-793.

Recently, researchers have been investigating the possible cardiovascular protective properties of marine fatty acids. It has been hypothesized that one of these fatty acids, eicosapentaenoic acid, may decrease incidence of thrombotic diseases by inhibiting platelet aggregation. This fatty acid is also being investigated for its possible beneficial effects in inflammatory diseases such as arthritis and systemic lupus erythematosus.

In response to the current interest in the physiological effects of omega-3 fatty acids, the Nutrient Data Research Branch of the U.S. Department of Agriculture's Human Nutrition Information Service has prepared two provisional food composition tables. The data in Table 1 (selected seafood products) and Table 2 (selected foods) were taken from published revised sections of USDA Agriculture Handbook No. 8. The remaining data were taken from the U.S. Nutrient Data Bank. As revised sections of the USDA Agriculture Handbook No. 8 are prepared, the data in these provisional tables will be added.

The tables give values for total fat, cholesterol, and the total saturated, total monounsaturated, and total polyunsaturated fatty acids. Values for the omega-3 fatty acids linolenic acid (18:3), eicosapentaenoic acid (20:5), and docosahexaenoic acid (22:6) are provided. These tables will be of interest to anyone involved in food consumption research or therapeutic dietary consultation.

Supplementary listing of articles

Dietary sodium, calcium, and potassium, and blood pressure. Kok, F.J., Vandenbroucke, J.P., van der Heide-Weissel, C., & van der Heide, R.M. (1986). *American Journal of Epidemiology*, 123, 1043-1048.

Updated nutritional assessment and support of the elderly. Shuran, M., & Nelson, R.A. (1986). *Geriatrics*, 41, 48-70.

A proposed method for the nutritional rating of foods. Tseng, R.Y.L., Sullivan, M.A., & Downes, N.J. (1986). *Journal of Nutrition Education*, 18, 67-74.

Research and application of current topics in sports nutrition. O'Neil, F.T., Hynak-Hankinson, M.T., & Gorman, J. (1986). *Journal of the American Dietetic Association*, 86, 1007-1015.

Ethno-specific communication patterns: Implications for nutrition education. Farkas, C.S. (1986). *Journal of Nutrition Education*, 18, 99-103.

Scoliosis and fractures in young ballet dancers. Relation to delayed menarche and secondary amenorrhea. Warren, L.F., & Hamilton, W.G. (1986). *The New England Journal of Medicine*, 314, 1348-1353.

Submitted by
Laurie A. Wadsworth, MSc

Textiles/Clothing

Fashion by mail: Implications for home economists.

Smallwood, V.A. (1986)
Journal of Home Economics, 78(1), 16-17.

Purchasing goods by means of catalogue shopping has become one of America's most popular methods. Statistics show that 74% of all U.S. households made catalogue purchases within the past year. Within the past decade it has been estimated that consumer purchases, via catalogue shopping, have increased by 10% each year. This figure is twice the growth rate of retail stores. The area of catalogue purchasing has come to be known as a sophisticated and affluent consumer market, with users of this market being known as 'mailbox gourmets'. Studies aimed at examining the socio-demographic characteristics of in-home shoppers found that they tend to rank significantly higher than other types of shoppers in family income, education, and occupation of household head. It is suggested that the more affluent, highly educated shopper is more likely to seek the shopping flexibility and convenience that catalogue shopping can provide. Further studies indicate that in-home food shoppers are more likely to be employed outside of the home, have higher status occupations, and be younger than store shoppers. One study found that a high percentage of catalogue shoppers hold professional occupations, attend college, are between the ages of 25 and 44, and are female. The use of catalogue shopping first emerged in Europe in 1498 when Aldus Manutius compiled a trade catalogue of 15 of his published texts. Today catalogue businesses are growing to meet consumers' varied demands for convenient shopping resources. For home economists, this industry offers a new source of career opportunities for those interested in merchandising. Catalogue shopping further opens the area for extension home economists who could provide education to rural, handicapped, and elderly consumers. Consumer education regarding catalogue shopping could help reduce the perceived risks experienced by consumers when shopping by mail.

Clothes make the working woman — foreign clothes, that is.

Love, M. (1986)
America's Textile International, 15(7), 27.

With the growing number of women entering the work force, there is an increased need for more varied professional apparel. At one time, women entering male-dominated jobs were satisfied with wearing two-piece navy blue suits with severe white blouses and neat little string ties. As more women obtain a wider variety of occupations, they demand more from the apparel industry. This group of women — that is, women who hold jobs for wages, run their own businesses, or work at non-traditional tasks — constitutes one of the largest and fastest growing sectors of the apparel industry. Some companies have been able to profit from this new market created by working women. Sales show that Liz Claiborne Inc. has dominated this market in recent years. Retail outlets that carry Liz Claiborne products report that

the garments move quickly, and rarely need to be marked down to encourage sales. Liz Claiborne Inc. is one of many apparel manufacturers who depend on offshore sourcing for approximately 88% of its products. The Far East is a popular area for this type of sourcing. Price and flexibility are the main reason given by domestic manufacturers for their use of overseas suppliers. Despite their distance, overseas suppliers are able to react faster and more efficiently than domestic suppliers. Long-term projections suggest that the percentage of use of overseas suppliers by domestic manufacturers will remain intact, while domestic sources are likely to decline. The main reason for this movement is the inability of the domestic industry to compete. It has been recommended that domestic industries should be more concerned with their ability to compete more effectively with foreign markets rather than appealing to consumers' patriotism when they make purchases.

New fiber variants stress performance, comfort.

Davidson, W.A.B. (1986)
America's Textile International, 15(7), 60, 62, 64.

The international research into developing new fibre types remains ever prevalent. Emphasis has been placed on the manipulation of chemical and physical properties to modify existing products. At the recent 56th Annual Conference of the Textile Research Institute, speakers from around the world gathered to discuss the need for improving performance qualities of all types of fibres for a variety of end-uses. For use in the apparel industry, the desire is to produce synthetic fibres with as many natural fibre characteristics as possible. Fibre producers are also reacting to the increased international demand for high performance materials that combine strength, modulus, and toughness. A new fibre, Acrilan acrylic, developed by a U.S. manufacturer, allows for changing fibre properties creating the potential for improved performance in apparel and home furnishings. Progress into the production of first generation Acrilan has resulted in a modification of the process to create second generation fibres. Other advances in the production of fibres are: Dunova, a core/sheath fibre used for the production of fabrics with outstanding wear comfort; extended chain polyethylene fibres, used for marine ropes and sails because of the unusually high tensile properties of the fibre; and the development of high-performance fibres for use as reinforcements in composite structures. Fibre manufacturers believe that further research into this area will expand as the increased technology and demand for high-performance fibres continues.

Supplementary listing of articles

Fashion change and demographics: A model. Behling, D. (1985). *Clothing and Textiles Research Journal*, 4(1), 18-24.

Manchester mackintoshes: A history of the rubberized garment trade in Manchester. Levitt, S. (1986). *Textile History*, 17(1), 51-69.

Weavers, wage-rates and the measurement of work in eighteenth-century Rouen. Sonenscher, M. (1986). *Textile History*, 17(1), 7-18.

Crosslinking effects in reactive dyeing of protein fibers. Ball, P. (1986). *Textile Research Journal*, 56(7), 447-456.

Quantitative fibre mixture analysis by scanning electron microscopy part 1: Blends of mohair and cashmere with sheep's wool. Wortmann, F.J. (1986). *Textile Research Journal*, 56(7), 442-446.

Submitted by
Heather Meiklejohn, BHEc
MSc graduate student

... In Trends

Textile and Clothing Issues

The Consumers' Association of Canada (CAC) has established 10 areas of policy priority for 1986-87, including textiles and clothing for which a new national issues committee has been formed. The new committee, to be chaired by Nova Scotia volunteer Linda Lusby, will deal with trade issues and quotas as well as with quality, sizing, care labels and pricing. It is one of nine CAC national issues committees responsible for generating policy recommendations to CAC's board of directors through an umbrella group called the Policy Advisory Committee.

Source: *The Watchdog*. (1986, Summer) p. 2.

Compact Microwave Ovens

Consumers' Association of Canada tested 12 compact microwave ovens ranging from simple models with two power levels to a sophisticated touch-control model offering 100 power levels. All were equally safe and durable, but some were much more convenient to use and cooked more evenly than others.

The article in *Canadian Consumer* reports that: the Candle, Sharp and Panasonic models were equipped with a rotating turntable: the oven with the biggest usable volume was the Panasonic at 177L; the Panasonic and Quasar will cook food a little faster than the others; quietest were Hitachi, Panasonic, and Quasar.

"Choosing a compact microwave is largely a function of choosing what features you need. If defrosting and reheating foods is all you're likely to use the microwave for, a simple mechanical oven should suit you fine at a substantial saving. Of the three we tested, the Candle performed best. At \$280 it was the least expensive oven we tested, but it was larger than its counterparts and its timer ran for only 15 minutes.

More ambitious cooks will need more power levels and longer cooking times. Our best performers were the turntable models: Hitachi (\$460), Panasonic (\$430), and Sharp (\$410), followed by the General Electric (\$430), and Quasar (\$440). The Panasonic is our recommended buy, but any of these should prove satisfactory for most cooking."

Source: Hibler, M. (1986, July). Compact Microwave Ovens. *Canadian Consumer*, pp. 14-18.

Treasury Bills — Now Easier to Buy

Now there is another option for persons with smaller sums of money to invest — Government of Canada Treasury Bills. Government of Canada Treasury bills, or T-Bills, as they are called, are used by the Federal Government to finance short-term cash requirements. They are auctioned on Thursday of each week by the Bank of Canada. Brokerage houses, certain banks, and other financial

institutions registered as agents with the Bank of Canada submit bids for the amount they wish to purchase and the price they are willing to pay. The Bank of Canada accepts a range of bids. The bank rate is then set 15/100th of a point above the average rate available at auction for T-Bills. The bank rate is what you hear through the mass-media each Thursday. It is the trendsetting rate that banks follow when setting their interest rates for loans and deposits. Since the minimum T-Bill denomination available is \$100,000 they used to be out of the reach of the ordinary person. However, brokerage houses have recently made these very flexible investments available to persons with \$5,000 to invest. Some firms charge a commission for these purchases, while others use it as a loss leader. As a loss leader, the firms charge no commission for the purchase of T-Bills. The idea is to get your money on deposit with their company.

The maturity dates of T-Bills are 91 days and 182 days from the date they were issued. There is an active secondary market. This means that T-Bills that have been cashed prior to their maturity date can be purchased. As a result you can buy T-Bills that mature in less than the original 91 or 182 day period. You don't pay the face value of the bills. They are sold at a discount and mature at face value. The difference between the face value and the price paid for the bills — the increase in value — is the basis for the interest payment. Although the appearance is of a capital gain, the income on T-Bills is taxed as interest income. The February 1986 budget changed the reporting methods for T-Bills to make tax evasion harder, but also to ease tax preparation for those who do report their T-Bill income. Starting on January 1, 1987, issuers of T-Bills will be required to provide annual information slips showing the discount on T-Bills they sold to you. You get similar slips if you have registered bond interest, dividends and royalty payments. You'll get a copy — so will Revenue Canada. When you buy T-Bills you must also leave your social insurance number with the broker. This will ensure that Revenue Canada has a record of the transaction, and knows just how much you made. This rule comes into effect, January 1, 1987.

Source: Home Economics News Reference. (1986, August) Manitoba Department of Agriculture.

Health Care for the Elderly

Will Canada be able to meet the needs of its aging population by the turn of the century? Rising health care costs, combined with an anticipated wave of senior citizens as the baby boomers grow old, have made this question a critical one for policy-makers. With that in mind, the Economic Council sponsored a Colloquium on "Aging with Limited Health Resources," which was held in Winnipeg in May, 1986.

Over a two-day period some 100 participants from diverse backgrounds in scientific and social research, economics, health administration, and government talked about the key issues in the health care field and explored potential developments. The main topics discussed at this meeting

were: meeting health care needs, long-term care facilities, preventive care, advances in technology, ethical questions, and planning for the future. The issues raised at the Colloquium were summarized by dinner speaker Monique Jérôme-Forget, vice-rector of Institutional Relations and Finance at Concordia University. She concluded with four recommendations "of the utmost importance" for health care in the future: the establishment of clear objectives to improve overall health by the year 2000; the development of a first-class information system; the increased use of cost-effectiveness and cost/benefit analysis; and the introduction of a new system emphasizing prevention and cost-effective techniques.

In her closing remarks, Council chairman Judith Maxwell pointed to "incentives and integration" as key initiatives in future for Canada's health care system. While Canada should not unquestioningly imitate foreign systems, she continued, there are valuable lessons it can learn from other countries, particularly with respect to the importance of innovation and change. As well, Canada should be working to break down the barriers between its social and medical systems, while encouraging people to develop a sense of personal responsibility for health care.

Source: Aging with limited health resources. (1986) *Au Courant*, 7(1), 2-9. *Au Courant* (published quarterly) is available without charge from the Information Division, Economic Council of Canada, P.O. Box 527, Ottawa, ON K1P 5V6.

Canada Health Attitudes and Behaviours Survey 1984-85

The Canada Health Attitudes and Behaviours Survey was designed to identify the health-related attitudes and behaviors of 9-, 12-, and 15-year old Canadians. It was conducted by The Social Program Evaluation Group of Queen's University with support from an advisory group of Canadian health educators. The information from the survey should be used to focus nutrition education in order to decrease health risks imposed by poor nutritional habits and to promote healthy lifestyles among young Canadians. Some of the major nutritional problems identified in the survey were: approximately 30% of the 9-year olds do not eat vegetables daily; 20% of 15-year olds rarely eat breakfast; 2/3 of young people have diets high in fat; as young people get older, they are less likely to eat yellow vegetables, fish, beans, and whole grain breads and cereals.

These problems suggest some basic diet modifications which should be emphasized to these age groups to improve the nutritional adequacy of their diets now and develop good habits for the future. These guidelines are to: increase intake of vegetables especially yellow vegetables; develop the desire to eat breakfast daily; and choose low-fat high-fibre foods at meals and snacks. These recommendations are similar to the national dietary guidelines to improve health and protect people against the onset of lifestyle diseases such as cancer, heart disease, and diabetes mellitus.

Source: *Food For Thought*. (1986, September). Food and Nutrition Specialist, Manitoba Health.

High — Tech Handbook

Workable Futures is a handy, easy-to-read guide to the major new technologies of our time — the first of its kind in Canada. Judith Maxwell, Chairman of the Economic Council of Canada, said the handbook, was commissioned after

economists working in the Council's labor and technology research group found that no reference books were available to help the non-specialist understand key developments in new technology. "The group saw a chance to create a book that would help Canadians understand the new technologies and have some fun reading at the same time," said Maxwell.

Workable Futures was prepared by Words Associated, an Ottawa consulting group, under the direction of Keith Newton, director of the Council's labor and technology group. "It's important that everyone understands what to expect from the technical innovations ahead," Newton explained. "*Workable Futures* is designed to be accessible to students, business people, union members and anyone who is curious about the new technology".

For more information: Contact Robert Douglas, (613) 993-2805. *Workable Futures: Notes on Emerging Technologies*, by Words Associated and K. Newton, Ottawa, Supply and Services Canada (Cat. No. EC22-132/1986E; \$5.95 in Canada and \$7.15 in other countries).

... In Ideas

Housing Policy for Mother-led Families

Many mother-led families must choose between costly, oversize, and inaccessible suburban accommodation, and small city flats not suited to children. Neither alternative is ideal — for these families nor, for that matter, for many two-breadwinner households with children. Much Canadian housing — notably suburban tract housing — is designed for families with one parent working away from home while the other stays home doing child care and other domestic work. Such neighbourhoods usually offer limited shopping, few job opportunities, and no day care facilities. Public transportation is commuter-oriented, not catering to the needs and schedules of other residents.

Since the 1968 easing of divorce laws, the number of separated and divorced female single parents with children has grown. Meanwhile, their average incomes have remained at about 45% of the average of all families. Steadily the need for low-cost housing has increased. Mother-led families encounter difficult access to opportunities in the community. Child care responsibilities are a factor, but the problem is greatly exaggerated by lack of access to an automobile. A 1978 survey found that 58% of single parents lack such access. Housing located near shopping, child care, and job opportunities reduces the accessibility problems of these families.

One alternative that is probably cheaper and better suited to the needs of single mothers is the intensification of existing residential areas. This may include encouraging either the division of single family dwellings into multiple units or the addition of a new unit to an existing structure. Potential advantages to female-single parents are multiple. Intensification might allow single mothers living in owned accommodation an opportunity to reduce the size and cost of this living space without having to uproot themselves. As for choosing between alternative housing policies, we seem to be at a crossroads. The dimensions of the housing affordability squeeze will not be resolved without concerted public action.

Excerpts from: Klodawsky, F., & Spector, A. (1986, June) Housing policy as implicit family policy: The case of mother-led families. *Transition*, p. 6-8.

Diet and Behavior: A Multidisciplinary Approach

Nutrition Reviews released this 254-page supplement covering the proceedings of a November, 1984 symposium. Reports by 34 leading scientists illuminate the following topics: the effects of food and nutrients on brain function; the effects of food and nutrients on behavior, including hyperactivity, criminal behavior, sleep and mood; strategies for improving research on diet and behavior.

To order: Make cheques (U.S. dollars) payable to ILSI-Nutrition Foundation and send \$12 (individuals), \$15 (institutions) to Diet and Behavior, ILSI-NF, 1126-16th Street, NW, Washington, DC 20036.

Successful Breastfeeding

"Currently, 70 to 75% of Canadian mothers are breastfeeding their babies when they leave the hospital. For many of these women, the process is natural, trouble-free and satisfying. They wean when their baby is ready or when they are committed to social and career responsibilities. Unfortunately, many others experience problems with painful breasts, insufficient milk supply, illness and lack of support for breastfeeding. As a result of not knowing how to overcome these conditions, they wean prematurely. Researchers have found that the lack of knowledge about breastfeeding and infant feeding can be the strongest determinant of the length of breastfeeding.

Health professions can help to minimize the breastfeeding problems mothers face. Firstly, they need to find opportunities to work with new mothers from the prenatal through to the postnatal period. Secondly, they need to be armed with information appropriate to the problems faced by these mothers."

In this article the author thoroughly examines three important places (prenatal classes, in hospital, at home) where information and support can be given by health professionals.

Source: Clark-Lowry, L. (1986). Step to successful breastfeeding. *In-Touch*, 4(VIII), pp. 1-4.

Saving for a Child's Education

There are four popular approaches when planning an education fund: putting money in a savings account, buying a life insurance policy for the child, buying a Registered Educational Savings Plan (RESP), and buying a Mutual Fund. Bill McLeod in *Canadian Money Saver* advises not to choose the first two methods, has reservations about RESP's, and highly recommends Mutual Funds. He explains, in easy-to-understand wording, the main advantages and disadvantages of each plan. This article is a must for any parent/grandparent wanting to save money for a child's education.

Source: McLeod, B. (1986, September) Mutual funds and saving for a child's education. *Canadian Money Saver*, pp. 2-3.

Marketing Your Service or Product

There's a whole host of possible marketing alternatives for any product. Your job as an entrepreneur, is to find those alternatives that have not yet been exploited to their full potential. Richard Stacey in *Canadian Money Saver*, looks at five ways that you could market a product or service: selling at tradeshow, selling to governments, selling to department stores, selling to your own independent distributors, and selling by mail order. "Whatever marketing alternatives you choose for your product or

service, make sure you investigate all the possibilities. The best business advice is 'Get out and try something'."

Source: Stacey, R. (1986, July-August). How to market a product or service. *Canadian Money Saver*, pp. 198-199.

Preventive Health: Two Points of View

Dr. C. Laberge supports the theory of individual risk approach to a preventive health policy. "Since we are dealing with populations, the categories of intervention must be defined by epidemiological studies. There should be a change in strategy when specific genetic disorders are identified that cannot be effectively dealt with through advice to the whole population. If some of the budget applied to public policy were directed to research for genetic markers of individual risk, for example, hypercholesterolemia, the eventual costs of patient care in cardiac units would decrease by 60 percent."

Dr. A. Petrasovits supports the theory of population based strategies (PS). Hence the rationale for the PS approach is to lower the distribution of the risk factor in the whole population so that the average risk is reduced to an acceptable level. In contrast to the individual risk approach, the PS does not require screening to identify those at risk, which can be not only expensive but logistically and ethically complicated. The individual risk approach and the PS are not mutually exclusive. Each has a unique contribution to make with its own costs and limitations. It is desirable to achieve a balanced policy whereby the need to help or care for individuals at high risk is recognized, while at the same time implementing community-wide interventions."

Source: Laberge, C., & Petrasovits, A. (1986, July). Two points of view. *Rapport*, p. 5-6.

... In Products

Commercial Baby Food: Nutritious?

Consumer Reports (CR) recently compared 125 popular infant and junior foods from three baby-food makers: Gerber, Beech-Nut, and Heinz. Seven main groups of baby food were examined: juices, cereals, fruits, vegetables, meats, mixed dinners, and desserts. The report compared brands based on key nutrients each product had to offer — vitamin C for juices; protein, riboflavin, and other nutrients for meats. Where possible, cost and nutrition of the baby-food versions of each food were compared to homemade versions. Some highlights of this study were: Gerber cereals contained less calcium and niacin than Beech-Nut or Heinz; home-cooked meats were nutritionally superior to their baby food counterparts; and meat dinners, because they contain starchy fillers, offer less nutritive value than if you combined a jar of meats and a jar of vegetables. Many baby foods are fortified with Vitamin C and certain other nutrients. Except in the case of infant cereals, fortification isn't necessary. A baby fed a varied diet should get all the necessary vitamins and minerals.

CR recommends feeding baby the family's food when you can and choosing wisely from commercial baby foods when that's not practical. Homemade baby food is much more

economical and when carefully prepared, that is, not overcooked, contains trace nutrients that are destroyed in processing commercial foods. The study concluded that if you stay away from mixed dinners, some fruits (those with added sugar), all desserts, you can feed your baby nutritious commercial food.

Source: Is baby food good enough for baby? (1986, September). *Consumer Reports*, pp. 593-598.

Yogurts Test

Despite their healthy image, yogurts aren't all low in fat and calories. Consumers' Association of Canada (CAC) tested 14 brands of plain and strawberry yogurts, rating them according to how much calcium they offered for the least fat and calories. They also rated their flavor and texture. The strawberry yogurts contain less protein and calcium than the plain because some of the yogurt is removed to make way for the fruit. Many Canadian women don't consume 800 mg of calcium per day, the required amount for healthy bones and teeth. A regular 175 mL container of some top-performing yogurts will provide you with one-third of Health and Welfare's recommended calcium intake.

The results of the tests should make your choice easy. The three yogurts that yielded the most calcium for least calories from fat were also judged the tastiest. Yoplait plain and strawberry and Lucerne plain. Of these, Yoplait plain is additive free.

Source: Hibler, M. (1986, September). Yogurt. *Canadian Consumer*, pp. 15-18.

... In Publications

Choices About Tobacco and Smoking (CATS)

Developed by Health and Welfare Canada, this activity package is aimed at young people, ages 10 to 14 and points out the benefits of selecting a smoke-free lifestyle. Two booklets comprise this aid: *CATS*, containing 12 action plans for smoking awareness activities for youth group participants, and *Standing By* for youth group leaders.

To order: Order free of charge from Health and Welfare Canada, Ontario Regional Office, Ste. 410, 102 Bloor St. W., Toronto, ON, M5S 1M8, (416) 973-1805.

Guide to Preventing Children's Injuries

Safe Not Sorry is an informative 32-page booklet designed to help parents become more aware of the dangers that exist for children. This booklet highlights the main causes of children's injuries: choking and suffocation; scalds; falls; poisonings; burns; drowning; cuts; play accidents; accidents on roads; bike and car accidents. Since it is impossible to prevent all accidents, there is a section on emergency first aid, what to do should an injury occur, and what to put in a first aid kit.

To order: Copies are available in English or French for \$3.00 each or \$2.50 for orders of 10 or more from Canadian Institute of Child Health, 17 York St., Ottawa, ON, K1N 5S7. Send purchase order number, cheque or money order.

Film on the Nairobi Conference

The film *Speaking of Nairobi* is about a July 1985 meeting, where 17,000 women from 150 countries met in Nairobi, Kenya. The main themes of the United Nation's Decade for Women were equality, development, and peace. The Nairobi Conference and Forum focussed as well on other pressing issues for women such as health, education, employment, racism, patriarchy and class. Development issues such as adequate water supplies, access to land, and ownership of property were on the agenda alongside questions of equality in the home and the workplace, and global peace.

The camera weaves a splendid and colorful tapestry of official and semi-official encounters, including a meeting with a Nairobi single mother who works seven 12-hour days a week to support her family. Screening time is 58 minutes. Available in 16 mm, 3/4", VHS or Beta.

To order: Local National Film Board (NFB) of Canada Office or NFB, P.O. Box 6100, Montreal, PQ H3C 3H5.

Toy Report

A bigger and brighter format, a special supplement on toy trends, new easy-to-read reference tables and a reduced selling price are some features of the 1987 *Toy Report*, published by the Canadian Toy Testing Council (CTTC) and Consumers' Association of Canada (CAC). The first-time co-publishing venture by two of Canada's most respected non-profit volunteer organizations combines CTTC's 35 years of toy-testing experience with CAC's expertise in the production and distribution of consumer publications. The joint effort promises to make the unique consumer guide available at a cost of \$5.95.

The 1987 edition is a large, attractive, magazine-style format with a full-color cover and big, bright pages designed for instant access to rating information. For the first time, age ranges will be highlighted in table form to help shoppers choose an appropriate toy for a particular child. There is a special section of feature pages giving readers some insight into trends in toys, news from the Toy Fair, a review of streetproofing games, and what to celebrate or avoid in the 1987 toy market. The Report's assessments go beyond adult views on safety and design to encompass children's perspectives on function and play value, making it the most comprehensive toy guide available anywhere. The 1987 *Toy Report*, distributed by CAC, is available at newsstands, bookstores, and selected grocery store chains.

For more information: Julie Creighton, CTTC, (613) 729-0169; or Richard Garlick, CAC, (613) 733-9450.

Coping with Anorexia Nervosa and Bulimia

This book helps both sufferers and their families understand more about these serious eating disorders. It also touches on how to seek help and lists sources for assistance.

To order: Available at no charge by writing to Ronald S. Manley, Department of Psychology, 4480 Oak St., Vancouver, BC, V6H 3V4.

On the Job

Profile of a Home Economist as a Food Technologist

Janice Meseyton

Have you ever heard of parsnip fudge? I hadn't until I came to work as a food technologist in product development at the Manitoba Research Council's Canadian Food Products Development Centre. As part of a multi-disciplinary consulting team, I help provide technical assistance to new and existing food industries.

The most interesting and challenging aspect of my job is the diversity of products and problems encountered. I'm always learning

something new — this can be both exciting and humbling.

My job involves all aspects of project work. In a typical week, I may research new foodservice uses for fish; conduct sensory evaluation panels to determine the shelf life of bacon; scale-up production of frozen entrees; commercially reformulate a condiment home recipe; investigate the reason color is leeching from a dessert into its topping; prepare a contract for a potential client; and write a project report complete with recommenda-

tions for decreasing production costs and labelling information. It takes a good deal of flexibility to shift from one project to the next and still meet time and budget deadlines.

As a home economist, I possess a unique set of skills well suited to the requirements of my position as food technologist. A broad science background allows me to understand the fundamentals of food chemistry and microbiology as they relate to raw material selection, processing effects, and product shelf life. For example, this technical knowledge enables me to decide how to formulate a table syrup which will retain its viscosity when heated and will have a retail shelf life of 6 months.

Specialized training in the areas of food, nutrition, and family studies helps me develop nutritious recipes for institutionalized senior citizens. I can compensate for the elderly's decreased taste acuity, and for the quantity preparation methods used by food service operations.

Practical experience gained through courses such as financial counselling, communication, and seminar presentation helps me effectively communicate with clients and colleagues. Without demonstration, presentation, and design skills developed in home economics, it would be difficult to conduct impressive product showings used to sell our ideas and services.

My home economics training has instilled a sense of professional pride and ethics essential to a career in the consulting business. It also has given me a valuable information network of colleagues in a variety of professions.

I don't want to leave you with the impression that a degree in home economics will ensure success as a food technologist. As in every career success is achieved through hard work, but it's worth knowing you've helped maintain the quality of the consumer's food supply and helped a new company get its start. □



Janice Meseyton at work, formulating a seasoning blend.

Janice Meseyton received a BHEc with a major in foods and nutrition from the University of Manitoba and is currently a food technologist in product development at the Canadian Food Products Development Centre in Portage la Prairie, Manitoba. She is a member of the Canadian Home Economics Association and the Winnipeg branch of Home Economists in Business.

What do you say when ...?

*What do you say when someone asks
"is it healthy to eat red meat?"*

Pat Scarlett

Meat has been part of the human diet since the beginning of time. It has long been recognized as an important source of protein, B-vitamins, iron, and zinc. However, in the last few years, red meat has received a great deal of negative press with the result that many consumers have decided to reduce, or even eliminate, its consumption. "Much of the concern about red meat is based on misconceptions about its fat content" (Zafiriou, 1985, p. 27).

Quantity of Fat

Meat produced in Canada today is lean. Changes in breeding, feeding, and grading techniques encourage the production of lean meat. Carcasses that are overfat are discounted, giving meat producers the financial incentive to produce high-quality, lean meat (Price, 1985).

Research by Jones (1985) shows that Canadian beef is 20-56% leaner than indicated in current nutrition tables (Health and Welfare Canada, 1979, 1983c). The fat content of beef (lean only) varies from 4-12%; for untrimmed beef, the fat level varies from 7-25%. Further research on beef has verified the Jones (1985) study (D. Wood, personal communication, June, 1986) and should be available in the near future for publication in a scientific journal. In addition, research for the Beef Information Centre (1981) showed that 70% of Canadians trim the fat from meat before eating. Retailers have also recently introduced 1/4-inch trim policies to satisfy the consumer demand for lean meat.

The reduction in fat content means that beef is comparable in fat content to poultry and to some types of fish (i.e., beef round roast, skinless roast chicken, and broiled cod have 6, 8, and 6% fat, by weight, respectively). A pilot study on Canadian pork (S.D.M. Jones, personal communication, February, 1986) indicates that lean only pork samples are up to 50% lower in fat than previously reported in *Nutrient Value of Some Common Foods* (Health and Welfare Canada, 1979).

Current nutrition tables (Health and Welfare Canada, 1979, 1983c) for meat are based on 25-year old U.S. data. However, these Canadian tables will be updated by Health and Welfare Canada as soon as new Canadian nutrient data are available.

Pat Scarlett, BA(Hons.) in Foods and Nutrition (University of Toronto), is currently home economist for British Columbia and National Nutrition Coordinator, both for the Beef Information Centre.

Type of Fat

The fat in meat is composed of both saturated and unsaturated fatty acids. Beef fat (tallow) is 48% saturated fatty acids and 47% unsaturated; pork fat (lard) is 40% saturated and 55% unsaturated (Clandinin, 1984). Meat is only one source of saturated fat in the diet; other sources include poultry, fish, margarine, butter, crackers, cookies, baked goods, chocolate bars, etc. It should be noted that the current Nutrition Recommendations for Canadians suggest "a reduction in calories from fat to 35 percent of total calories," (Health and Welfare Canada, 1983b, p. 2) but give no recommendations as to the type of fat except for including a source of linoleic acid.

Cholesterol Content

The cholesterol content of items in the meat group is very similar: 90 g servings of beef, pork and chicken have 82, 79, and 80 mg cholesterol, respectively. Cholesterol levels in fish have more variation, ranging from 33 to 135 mg per 90 g serving. There still is some question as to the effect of dietary cholesterol on serum cholesterol levels in the general public. No recommendation is given for cholesterol in the Nutrition Recommendations for Canadians (Health and Welfare Canada, 1983b).

Energy Value of Red Meat

On average, a 90 g serving of lean meat has 200 kilocalories (calories). The kilocalories would be higher if the visible fat was not trimmed. Thus, one serving of meat provides 7-11% of the daily energy requirement (Health & Welfare Canada, 1983d) for an adult male and female, respectively.

Nutritional Contribution to the Diet

Meat is an important source of protein; however, it is also a major contributor of iron, zinc, vitamins B₁₂, B₆, niacin, and thiamin. Iron is a nutrient often consumed in marginal amounts, particularly by "teen-age girls and pre-menopausal women" (Shah, 1984, p.2). The absorption of iron is dependent on the type of iron (heme vs. non-heme), the presence of promoters and inhibitors, and the nutritional status of the individual (Shah, 1984). "The iron from meat is in a highly available form (heme) and is more completely absorbed than iron from other sources. In addition, the presence of meat in the diet enhances the absorption of non-heme iron" (Hawrysh, 1983, p.1). The availability of zinc is also affected by dietary components; zinc usually is poorly bioavailable from plant sources and "the zinc in high protein animal foods is highly bioavailable" (Bettger, 1985, p.2).

Red Meat Consumption

Data on per capita meat consumption are based on disappearance data, which is the total amount of meat that has "disappeared" in the system per year divided by the Canadian population. This calculation does not allow for losses due to cooking, trimming, and waste. When allowances for these factors are taken into account, the per capita consumption of meat is less than 90 g per day (Anonymous, 1983). Canada's Food Guide (Health and Welfare Canada, 1983a) recommends two servings (1 serving = 60-90 g) from the meat, poultry, fish and alternates group each day.

Conclusion

It is healthy to include meat in the diet for its contribution of important nutrients. The recommendation for its consumption should be the same as for any food — variety, balance, and moderation. □

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Issue	Deadlines	
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Home economics education

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- Eyre, L. (1985). *Sexism in home economics: A content analysis of the Canadian Home Economics Journal 1950-1985*. Unpublished master's thesis. Mount Saint Vincent University, Halifax. (Advisers, A. Murphy, M. Bateman Ellison, M. Conlon)

Reader Forum

(Continued from page 3)

This will, I am sure, explain the problems your critics had with the "appropriateness for one grade level"; the "skimming of the surface" rather than an in-depth approach; the placement of careers planning in a home economics curriculum.

The *Canadian Home Economics Journal* is a widely read and highly respected resource document. It is unfortunate that three textbooks written specifically for a Ministry document by Canadian teachers should receive such a poor rating, simply because its reviewers were not familiar with the specifications of the guideline for which these books comprise a major resource.

Beverley Cowan
Family Studies Consultant
Halton Board of Education
Burlington, Ontario

Editor's note. The above-mentioned books were received from the publisher for review purposes with no indication that the series was "written specifically for a Ministry document". The reviewers based their comments on the appropriateness of the series for the curriculum in which they function (i.e., Manitoba).

Action to Facilitate Change

I can remember as a teacher of home economics being asked "What do you teach in home economics?" I recall the anger and frustration I experienced because a colleague was not aware of what we taught in home economics. I remember the indifferent reaction and minimal support expressed when I attempted to articulate the mission of home economics and its place in the school program.

Presently, as a program consultant, I am being questioned as to the relevancy of specific content in the home economics curricula since teachers and students of related subjects are voicing concern on the "overlap" and "repetition". Again I find myself reflecting on the most appropriate response. I am certain that in due time I will be faced with similar issues needing "the most appropriate" action/reaction.

The Fall issue of the *CHEJ* has the answers to the many dilemmas that I have confronted or will confront. The focus articles highlight and clearly articulate the appropriate action and strategies for all the issues and quandries that continually surface. My compliments to the Journal Committee and authors for sharing this expertise and knowledge on the why's, the how's, the when to, and what to consider when my knowledge, skills, and professional practice are challenged. According to Vaines and Wilson; Parker; Dowdeswell; Norris; and Baldwin, as professionals we must work as a team, chart a course of action and become involved in the public policy process. I'm ready — what a challenging time to be a home economist.

Titania (Tanya) Tremblay
Program Consultant, Family Studies
Province of New Brunswick

Nutrition Topics and the CHE Journal

Recently, I had occasion to examine the various types of nutrition articles that characterize several of the journals in the field. Most journals attempt to carve a special niche for themselves. What is the niche occupied by *CHEJ* re the nutrition research/information it presents? Regarding subject matter, I would say eclectic. From my review, I was unable to draw any clear profile of the type of individual to whom nutrition research and information is directed. Maybe that is as it should be due to the diverse nature of the audience.

Regarding the general approach of *CHEJ* to nutrition topics, however, the picture became clearer. For example, the research design and statistical analysis tend to be relatively straightforward. Readers, therefore, do not have to be researchers themselves to find the articles meaningful. The main type of research appeared to be epidemiological and quantitative, as compared, for example to more biochemically-based, or qualitative.

These general impressions lead me to a suggestion. I propose that *CHEJ* act more frequently as a bridge between the more technical articles found in some journals, and the more shallow summaries one sometimes has occasion to read. An example would be Lipid Research Clinics Trial summarized by Mercer (*CHEJ*, Winter 1986, 36(1), 20). A further step the author might have taken would be to place the study in the context of other research conducted in the area.

The field of nutrition is very dynamic, and I believe this is a very useful way that *CHEJ* could help their readers keep abreast of new developments.

Mary L.M. Breau
Lecturer, Home Economics Education
University of New Brunswick

A Student's Perspective

Students of home economics know what home economics is but how well do we explain our program goals and objectives to students of other disciplines? How often is time taken to explain the importance and value of home economics for all individuals?

The time has come for our future teachers and home economists, our present students of the discipline, to take a strong stance in favor of home economics. Each of us has a role to play, be it explaining to family or friends what home economics is all about, or writing an article for the local paper. Be proud of what home economics stands for: the dedication to the worth and well-being of the individual and the family.

Speak out, in favor of home economics.

Jennifer Butler
4th Year Home Economics Education Student
University of New Brunswick